

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: February 11, 2005, 17:39:11 ; Search time 95.2251 Seconds  
(without alignments)  
373.662 Million cell updates/sec

Title: US-10-054-873-2  
Perfect score: 470  
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*  
1: geneseqp1980s:\*  
2: geneseqp1990s:\*  
3: geneseqp2000s:\*  
4: geneseqp2001s:\*  
5: geneseqp2002s:\*  
6: geneseqp2003as:\*  
7: geneseqp2003bs:\*  
8: geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	%		DB	ID	Description
		Query	Match Length			
1	470	100.0	92	2	AA42856	Aay42856 Human gro
2	470	100.0	134	2	AA92265	Aaw92265 Human ant
3	470	100.0	150	2	AA42861	Aay42861 Chimeric
4	465	98.9	140	1	AA91041	Aap91041 Human gro
5	465	98.9	188	8	AD47330	Adi47330 Plasmid p
6	465	98.9	192	1	AA90129	Aap90129 Human gro
7	465	98.9	192	2	AA92264	Aaw92264 Human ant
8	465	98.9	192	8	AD47320	Adi47320 Plasmid p
9	465	98.9	192	8	AD47390	Adi47390 Plasmid p

10	465	98.9	192	8	ADI47398	Adi47398	Nmer ampl
11	465	98.9	193	8	ADI47354	Adi47354	Plasmid p
12	465	98.9	206	8	ADI47384	Adi47384	Plasmid p
13	465	98.9	261	1	AAP91299	Aap91299	Human ner
14	465	98.9	262	2	AAR11740	Aar11740	Human gro
15	465	98.9	310	2	AAR03255	Aar03255	Fusion pr
16	465	98.9	391	8	ADI47363	Adi47363	Plasmid p
17	465	98.9	574	8	ADI47344	Adi47344	Plasmid p
18	465	98.9	576	8	ADI47351	Adi47351	Plasmid p
19	465	98.9	589	8	ADI47365	Adi47365	N+lmer am
20	465	98.9	786	8	ADI47367	Adi47367	Nmer ampl
21	465	98.9	810	8	ADI47388	Adi47388	Amplifica
22	462	98.3	144	2	AAR05313	Aar05313	Segment o
23	462	98.3	262	1	AAP61033	Aap61033	Human bet
24	462	98.3	794	7	ADF16507	Adf16507	Human alb
25	462	98.3	800	7	ADF16216	Adf16216	Human alb
26	460	97.9	138	1	AAP81226	Aap81226	Sequence
27	460	97.9	178	8	ADQ39283	Adq39283	Human myo
28	460	97.9	191	2	AAO20110	Aao20110	Protein s
29	460	97.9	191	2	AAY15809	Aay15809	Primary a
30	460	97.9	191	2	AAY04397	Aay04397	Mutant hu
31	460	97.9	191	2	AAY04396	Aay04396	Natural h
32	460	97.9	191	3	AAY78425	Aay78425	Human gro
33	460	97.9	191	4	AAO17485	Aao17485	Human gro
34	460	97.9	191	4	AAO17486	Aao17486	Human gro
35	460	97.9	191	5	ABG31865	Abg31865	Mature hu
36	460	97.9	191	5	ABG31863	Abg31863	Mature hu
37	460	97.9	191	5	ABG31860	Abg31860	Mature hu
38	460	97.9	191	5	ABG31866	Abg31866	Mature hu
39	460	97.9	191	5	ABG31857	Abg31857	Mature hu
40	460	97.9	191	5	ABG31861	Abg31861	Mature hu
41	460	97.9	191	5	ABG31862	Abg31862	Mature hu
42	460	97.9	191	5	ABG94932	Abg94932	Human gro
43	460	97.9	191	5	ABG94967	Abg94967	Human gro
44	460	97.9	191	5	ABG94975	Abg94975	Human gro
45	460	97.9	191	5	ABG94925	Abg94925	Human gro

# ALIGNMENTS

```

RESULT 1
AAY42856
ID   AAY42856 standard; protein; 92 AA.
XX
AC   AAY42856;
XX
DT   19-JAN-2000   (first entry)
XX
DE   Human growth hormone (hGH) N-terminal fragment #2.
XX
KW   Growth hormone; chaperone; intramolecular; insulin; precursor; folding;
KW   conformation; chimeric protein; cleavable; recombinant; production;
KW   yield.
XX
OS   Homo sapiens.
XX

```

PN WO9950302-A1.  
 XX  
 PD 07-OCT-1999.  
 XX  
 PF 31-MAR-1998; 98WO-CN000052.  
 XX  
 PR 31-MAR-1998; 98WO-CN000052.  
 XX  
 PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.  
 XX  
 PI Gan Z;  
 XX  
 DR WPI; 1999-610839/52.  
 XX  
 PT New chimeric proteins containing human growth hormone fragment, used  
 PT particularly for the production of human insulin.  
 XX  
 PS Claim 5; Page 28; 46pp; English.  
 XX  
 CC This sequence represents an N-terminal fragment of human growth hormone  
 CC (hGH) which is a component of a chimeric protein (AAY42861) which also  
 CC contains a human insulin precursor (AAY42859). The hGH portion of the  
 CC chimeric protein acts as an intramolecular chaperone (IMC) for the  
 CC insulin precursor, enabling it to fold correctly. A cleavable peptide  
 CC linker with a C-terminal Arg residue (AAY42857) enables the hGH portion  
 CC of the chimeric protein to be removed after folding has taken place.  
 CC Production of recombinant human insulin via an hGH-proinsulin chimeric  
 CC protein can provide human insulin with correctly linked cysteine bridges  
 CC with fewer necessary procedural steps, and hence resulting in a higher  
 CC yield of human insulin. The IMC sequences not only protect insulin  
 CC sequences from intracellular degradation by a microorganism host, but  
 CC also promote the folding of the fused insulin precursor, facilitate the  
 CC solubility of the fusion protein and decrease the intermolecular  
 CC interactions among the fusion proteins, thus allowing folding of the  
 CC fused insulin precursor at commercially useful high concentrations. The  
 CC procedural steps of cyanogen bromide cleavage, oxidative sulfitolysis  
 CC and related purification steps can thus be eliminated, along with the use  
 CC of high concentrations of mercaptan or the use of hydrophobic absorbent  
 CC resins  
 XX  
 SQ Sequence 92 AA;

Query Match 100.0%; Score 470; DB 2; Length 92;  
 Best Local Similarity 100.0%; Pred. No. 1.5e-39;  
 Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

RESULT 2  
 AAW92265

ID AAW92265 standard; protein; 134 AA.  
 XX  
 AC AAW92265;  
 XX  
 DT 08-JUN-1999 (first entry)  
 XX  
 DE Human anti-angiogenic peptide 16K hGH Met-1Prol33.  
 XX  
 KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;  
 KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;  
 KW placental vascularisation; pregnancy; treatment; angiogenic disease;  
 KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;  
 KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;  
 KW wound healing; proliferative retinopathy; macular degeneration; trachoma;  
 KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;  
 KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;  
 KW ulcer; leukaemia; reproductive disorder; contraceptive agent;  
 KW gene therapy; pre-eclampsia; intrauterine growth retardation;  
 KW placental dysfunction.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO9851323-A1.  
 XX  
 PD 19-NOV-1998.  
 XX  
 PF 12-MAY-1998; 98WO-US009691.  
 XX  
 PR 13-MAY-1997; 97US-0046394P.  
 XX  
 PA (REGC ) UNIV CALIFORNIA.  
 XX  
 PI Weiner RI, Martial JA, Struman I, Taylor R;  
 XX  
 DR WPI; 1999-045192/04.  
 DR N-PSDB; AAX01707.  
 XX  
 PT New anti-angiogenic peptides - comprise N-terminal fragments of human  
 PT placental lactogen, human growth hormone, growth hormone variant or human  
 PT prolactin.  
 XX  
 PS Claim 4; Page 49-50; 87pp; English.  
 XX  
 CC This invention describes novel human anti-angiogenic peptides derived  
 CC from 10 to 150 consecutive amino acids selected from the N-terminal end  
 CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
 CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit  
 CC capillary endothelial cell proliferation and organisation (ii) inhibit  
 CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at  
 CC least one specific receptor which does not bind an intact full length  
 CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for  
 CC diagnosing a probable abnormality of placental vascularisation during  
 CC pregnancy. The peptides can be used for treating an angiogenic disease in  
 CC a subject, for inhibiting tumour formation or growth in a patient or for  
 CC modulating vascularisation of a patient's placenta. In particular, the  
 CC peptides can be used for preventing or treating e.g. malignant tumours,  
 CC angiofibroma, arteriovenous malformation, arthritic such as rheumatoid

CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,  
 CC delayed wound healing, proliferative retinopathy such as diabetic  
 CC retinopathy, macular degeneration, granulations such as those occurring  
 CC in haemophilic joints, inappropriate vascularisation in wound healing  
 CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular  
 CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,  
 CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,  
 CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,  
 CC leukaemia, and reproductive disorders such as follicular and luteal cysts  
 CC and choriocarcinoma. They can also be used as contraceptive agents. DNA  
 CC encoding the peptides can be used in gene therapy. The measurement of  
 CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL  
 CC can be used in assays for impairment of vascular development associated  
 CC with pre-eclampsia, intrauterine growth retardation, and placental  
 CC dysfunction  
 XX  
 SQ Sequence 134 AA;

Query Match 100.0%; Score 470; DB 2; Length 134;  
 Best Local Similarity 100.0%; Pred. No. 2.2e-39;  
 Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
  
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

# RESULT 3

AA42861

ID AA42861 standard; protein; 150 AA.

XX

AC AA42861;

XX

DT 19-JAN-2000 (first entry)

XX

DE Chimeric protein, SEQ ID 7.

XX

KW Insulin; precursor; growth hormone; chaperone; intramolecular; folding;  
 KW conformation; chimeric protein; cleavable; recombinant; production;  
 KW yield.

XX

OS Synthetic.

OS Homo sapiens.

XX

PN WO9950302-A1.

XX

PD 07-OCT-1999.

XX

PF 31-MAR-1998; 98WO-CN000052.

XX

PR 31-MAR-1998; 98WO-CN000052.

XX

PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.

XX  
 PI Gan Z;  
 XX  
 DR WPI; 1999-610839/52.  
 XX  
 PT New chimeric proteins containing human growth hormone fragment, used  
 PT particularly for the production of human insulin.  
 XX  
 PS Claim 14; Page 30-31; 46pp; English.  
 XX  
 CC This sequence represents a chimeric protein, which contains an N-terminal  
 CC fragment of human growth hormone (hGH) of the sequence given in AAY42856,  
 CC a cleavable peptide linker (AAY42857), and a human insulin precursor  
 CC comprising insulin A and B chains (AAY42859). The hGH portion of the  
 CC chimeric protein acts as an intramolecular chaperone (IMC) for the  
 CC insulin precursor, enabling it to fold correctly. The cleavable peptide  
 CC linker has a C-terminal Arg residue which enables the hGH portion of the  
 CC chimeric protein to be removed after folding has taken place. Production  
 CC of recombinant human insulin via an hGH-proinsulin chimeric protein can  
 CC provide human insulin with correctly linked cysteine bridges with fewer  
 CC necessary procedural steps, and hence resulting in a higher yield of  
 CC human insulin. The IMC sequences not only protect insulin sequences from  
 CC intracellular degradation by a microorganism host, but also promote the  
 CC folding of the fused insulin precursor, facilitate the solubility of the  
 CC fusion protein and decrease the intermolecular interactions among the  
 CC fusion proteins, thus allowing folding of the fused insulin precursor at  
 CC commercially useful high concentrations. The procedural steps of cyanogen  
 CC bromide cleavage, oxidative sulphytolysis and related purification steps  
 CC can thus be eliminated, along with the use of high concentrations of  
 CC mercaptan or the use of hydrophobic absorbent resins  
 XX  
 SQ Sequence 150 AA;

Query Match 100.0%; Score 470; DB 2; Length 150;  
 Best Local Similarity 100.0%; Pred. No. 2.5e-39;  
 Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 Qy 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92

RESULT 4  
 AAP91041  
 ID AAP91041 standard; protein; 140 AA.  
 XX  
 AC AAP91041;  
 XX  
 DT 24-OCT-2003 (revised)  
 DT 14-DEC-1989 (first entry)  
 XX  
 DE Human growth hormone segment.  
 XX

KW Human growth hormone; fusion protein; thrombin; geriatric dementia;  
 KW nervous disorders; human nerve factor.  
 XX  
 OS Homo sapiens; (human).  
 XX  
 PN EP329175-A.  
 XX  
 PD 23-AUG-1989.  
 XX  
 PF 17-FEB-1989; 89EP-00102795.  
 XX  
 PR 19-FEB-1988; 88JP-00035042.  
 XX  
 PA (TOYJ ) TOSOH CORP.  
 XX  
 PI Ohtsuka E;  
 XX  
 DR WPI; 1989-243092/34.  
 XX  
 PT New human nerve growth factor gene encoding fusion protein - having  
 PT cleavage site for thrombin, useful for treating geriatric dementia, etc.  
 XX  
 PS Disclosure; Page 21; 38pp; English.  
 XX  
 CC Human growth hormone segment, used at the N-terminal of a fusion protein,  
 CC which contains a thrombin recognition site, and human beta nerve growth  
 CC factor (beta-NGF) at the C-terminal. Beta-NGF can be used to control  
 CC geriatric dementia and other nervous disorders, and can be released from  
 CC the fusion protein by incubation with thrombin (see AAN90577-8, AAP91034,  
 CC AAP91299). (Updated on 24-OCT-2003 to standardise OS field)  
 XX  
 SQ Sequence 140 AA;

Query Match 98.9%; Score 465; DB 1; Length 140;  
 Best Local Similarity 98.9%; Pred. No. 7.5e-39;  
 Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

# RESULT 5

ADI47330

ID ADI47330 standard; protein; 188 AA.

XX

AC ADI47330;

XX

DT 22-APR-2004 (first entry)

XX

DE Plasmid p0A11A1 amino acid sequence SEQ ID NO:18.

XX

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;  
 KW therapeutic protein.  
 XX  
 OS Synthetic.  
 XX  
 PN WO2004007687-A2.  
 XX  
 PD 22-JAN-2004.  
 XX  
 PF 16-JUL-2003; 2003WO-US022216.  
 XX  
 PR 16-JUL-2002; 2002US-0396466P.  
 XX  
 PA (BUSS/) BUSSELL S.  
 XX  
 PI Bussell S;  
 XX  
 DR WPI; 2004-122926/12.  
 DR N-PSDB; ADI47329.  
 XX  
 PT Multimer assembly of DNA sequences comprising an amplification cassette  
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'  
 PT terminus and 3' RPM at its 3' terminus.  
 XX  
 PS Example 2; SEQ ID NO 18; 163pp; English.  
 XX  
 CC The present invention describes a multimer assembly of DNA sequences (I)  
 CC comprising at least one amplification cassette (AC) having at least one  
 CC monomer sequence whose polymerisation is desired, and a 5' restriction  
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and  
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific  
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal  
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'  
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or  
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic  
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor  
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation  
 CC factor, a DNA replication factor, an activator, a chaperonin, or an  
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,  
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,  
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,  
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,  
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory  
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth  
 CC factor, fibroblast growth factors, vascular endothelial cell growth  
 CC factor, epidermal growth factor, transforming growth factor-beta,  
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,  
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth  
 CC factor, macrophage migration inhibiting factor, endostatin, or  
 CC angiostatin. The present sequence is used in the exemplification of the  
 CC present invention.  
 XX  
 SQ Sequence 188 AA;

Query Match 98.9%; Score 465; DB 8; Length 188;  
 Best Local Similarity 98.9%; Pred. No. 1e-38;  
 Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;



```

QY      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
      ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

QY      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
      ||||||||||||||||||||||||||||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

```

RESULT 6

AAP90129

ID AAP90129 standard; protein; 192 AA.

XX

AC AAP90129;

XX

DT 24-OCT-2003 (revised)

DT 25-MAR-2003 (revised)

DT 06-FEB-1996 (revised)

DT 01-NOV-1989 (first entry)

XX

DE Human growth hormone.

XX

KW Human growth hormone; fusion protein; recombinant vector.

XX

OS Homo sapiens; (Human).

XX

PN JP01144981-A.

XX

PD 07-JUN-1989.

XX

PF 02-DEC-1987; 87JP-00304937.

XX

PR 02-DEC-1987; 87JP-00304937.

XX

PA (WAKT ) WAKUNAGA SEIYAKU KK.

XX

DR WPI; 1989-209284/29.

DR N-PSDB; AAN90269.

XX

PT Recombinant vector contg. fused protein aminoacid coding - composed of growth hormone or its polypeptide deriv. and foreign protein.

XX

PS Disclosure; Fig 1; 19pp; Japanese.

XX

CC The invention consists of a vector contg. a fusion protein which is formed by ligating, downstream of a promoter, hGH or a deriv. (pref. formed by substn. of Met-14 with Leu) and a foreign protein. Stability of the vector in the host is greatly increased so the protein yield is higher. (Updated on 25-MAR-2003 to correct PA field.) (Updated on 24-OCT-2003 to standardise OS field)

XX

SQ Sequence 192 AA;

Query Match 98.9%; Score 465; DB 1; Length 192;

Best Local Similarity 98.9%; Pred. No. 1.1e-38;

Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 QY 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

RESULT 7

AAW92264

ID AAW92264 standard; protein; 192 AA.

XX

AC AAW92264;

XX

DT 08-JUN-1999 (first entry)

XX

DE Human anti-angiogenic peptide hGH Met-1Phe191.

XX

KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;  
 KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;  
 KW placental vascularisation; pregnancy; treatment; angiogenic disease;  
 KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;  
 KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;  
 KW wound healing; proliferative retinopathy; macular degeneration; trachoma;  
 KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;  
 KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;  
 KW ulcer; leukaemia; reproductive disorder; contraceptive agent;  
 KW gene therapy; pre-eclampsia; intrauterine growth retardation;  
 KW placental dysfunction.

XX

OS Homo sapiens.

XX

PN WO9851323-A1.

XX

PD 19-NOV-1998.

XX

PF 12-MAY-1998; 98WO-US009691.

XX

PR 13-MAY-1997; 97US-0046394P.

XX

PA (REGC ) UNIV CALIFORNIA.

XX

PI Weiner RI, Martial JA, Struman I, Taylor R;

XX

DR WPI; 1999-045192/04.

DR

N-PSDB; AAX01706.

XX

PT New anti-angiogenic peptides - comprise N-terminal fragments of human  
 PT placental lactogen, human growth hormone, growth hormone variant or human  
 PT prolactin.

XX

PS Example 3; Page 49; 87pp; English.

XX

CC This invention describes novel human anti-angiogenic peptides derived  
 CC from 10 to 150 consecutive amino acids selected from the N-terminal end

CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
 CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit  
 CC capillary endothelial cell proliferation and organisation (ii) inhibit  
 CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at  
 CC least one specific receptor which does not bind an intact full length  
 CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for  
 CC diagnosing a probable abnormality of placental vascularisation during  
 CC pregnancy. The peptides can be used for treating an angiogenic disease in  
 CC a subject; for inhibiting tumour formation or growth in a patient or for  
 CC modulating vascularisation of a patient's placenta. In particular, the  
 CC peptides can be used for preventing or treating e.g. malignant tumours,  
 CC angiofibroma, arteriovenous malformation, arthritic such as rheumatoid  
 CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,  
 CC delayed wound healing, proliferative retinopathy such as diabetic  
 CC retinopathy, macular degeneration, granulations such as those occurring  
 CC in haemophilic joints, inappropriate vascularisation in wound healing  
 CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular  
 CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,  
 CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,  
 CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,  
 CC leukaemia, and reproductive disorders such as follicular and luteal cysts  
 CC and choriocarcinoma. They can also be used as contraceptive agents. DNA  
 CC encoding the peptides can be used in gene therapy. The measurement of  
 CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL  
 CC can be used in assays for impairment of vascular development associated  
 CC with pre-eclampsia, intrauterine growth retardation, and placental  
 CC dysfunction

XX

SQ Sequence 192 AA;

Query Match 98.9%; Score 465; DB 2; Length 192;  
 Best Local Similarity 98.9%; Pred. No. 1.1e-38;  
 Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60  
 Qy 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92

RESULT 8

ADI47320

ID ADI47320 standard; protein; 192 AA.

XX

AC ADI47320;

XX

DT 22-APR-2004 (first entry)

XX

DE Plasmid pOA0 amino acid sequence SEQ ID NO:8.

XX

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;

KW therapeutic protein.

XX



Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92  
 |||

Db 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92

RESULT 9

ADI47390

ID ADI47390 standard; protein; 192 AA.

XX

AC ADI47390;

XX

DT 22-APR-2004 (first entry)

XX

DE Plasmid p0A51A amino acid sequence SEQ ID NO:78.

XX

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;

KW therapeutic protein.

XX

OS Synthetic.

XX

PN WO2004007687-A2.

XX

PD 22-JAN-2004.

XX

PF 16-JUL-2003; 2003WO-US022216.

XX

PR 16-JUL-2002; 2002US-0396466P.

XX

PA (BUSS/) BUSSELL S.

XX

PI Bussell S;

XX

DR WPI; 2004-122926/12.

DR P-PSDB; ADI47389.

XX

PT Multimer assembly of DNA sequences comprising an amplification cassette

PT having monomer sequences and 5' restriction pair member (RPM) at its 5'

PT terminus and 3' RPM at its 3' terminus.

XX

PS Example 12; SEQ ID NO 78; 163pp; English.

XX

CC The present invention describes a multimer assembly of DNA sequences (I)

CC comprising at least one amplification cassette (AC) having at least one

CC monomer sequence whose polymerisation is desired, and a 5' restriction

CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and

CC one or more of following: (a) 3'-terminal cassette comprising 3' specific

CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal

CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'

CC RPM site of AC. (I) can be used for expressing a diagnostic protein or

CC therapeutic protein. In (I), the diagnostic protein and therapeutic

CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor

CC ligand, an enzyme, an inhibitor, a transcription factor, a translation

CC factor, a DNA replication factor, an activator, a chaperonin, or an

CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,





DE Plasmid p0A31A amino acid sequence SEQ ID NO:42.  
 XX  
 KW multimer assembly; DNA sequence; amplification cassette;  
 KW monomer sequence; restriction pair member; diagnostic protein;  
 KW therapeutic protein.  
 XX  
 OS Synthetic.  
 XX  
 PN WO2004007687-A2.  
 XX  
 PD 22-JAN-2004.  
 XX  
 PF 16-JUL-2003; 2003WO-US022216.  
 XX  
 PR 16-JUL-2002; 2002US-0396466P.  
 XX  
 PA (BUSS/) BUSSELL S.  
 XX  
 PI Bussell S;  
 XX  
 DR WPI; 2004-122926/12.  
 DR N-PSDB; ADI47353.  
 XX  
 PT Multimer assembly of DNA sequences comprising an amplification cassette  
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'  
 PT terminus and 3' RPM at its 3' terminus.  
 XX  
 PS Example 7; SEQ ID NO 42; 163pp; English.  
 XX  
 CC The present invention describes a multimer assembly of DNA sequences (I)  
 CC comprising at least one amplification cassette (AC) having at least one  
 CC monomer sequence whose polymerisation is desired, and a 5' restriction  
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and  
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific  
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal  
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'  
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or  
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic  
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor  
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation  
 CC factor, a DNA replication factor, an activator, a chaperonin, or an  
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,  
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,  
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,  
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,  
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory  
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth  
 CC factor, fibroblast growth factors, vascular endothelial cell growth  
 CC factor, epidermal growth factor, transforming growth factor-beta,  
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,  
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth  
 CC factor, macrophage migration inhibiting factor, endostatin, or  
 CC angiostatin. The present sequence is used in the exemplification of the  
 CC present invention.  
 XX  
 SQ Sequence 193 AA;



Query Match 98.9%; Score 465; DB 8; Length 193;  
Best Local Similarity 98.9%; Pred. No. 1.1e-38;  
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

## RESULT 12

ID ADI47384 standard; protein; 206 AA.

AC ADI47384;

DT 22-APR-2004 (first entry)

DE Plasmid p0A43A insert amino acid sequence SEQ ID NO:72.

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;

KW therapeutic protein.

OS Synthetic.

PN WO2004007687-A2.

PD 22-JAN-2004.

PF 16-JUL-2003; 2003WO-US022216.

PR 16-JUL-2002; 2002US-0396466P.

PA (BUSS/) BUSSELL S.

PT Buswell S;

DR WPI; 2004-122926/12.

DR P-PSDB; ADI47383.

PT Multimer assembly of DNA sequences comprising an amplification cassette

PT having monomer sequences and 5' restriction pair member (RPM) at its 5'

PT terminus and 3' RPM at its 3' terminus.

PS Example 11; SEQ ID NO 72; 163pp; English.

CC The present invention describes a multimer assembly of DNA sequences (I)  
CC comprising at least one amplification cassette (AC) having at least one  
CC monomer sequence whose polymerisation is desired, and a 5' restriction  
CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and  
CC one or more of following: (a) 3'-terminal cassette comprising 3' specific  
CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal  
CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'

CC RPM site of AC. (I) can be used for expressing a diagnostic protein or  
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic  
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor  
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation  
 CC factor, a DNA replication factor, an activator, a chaperonin, or an  
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,  
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,  
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,  
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,  
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory  
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth  
 CC factor, fibroblast growth factors, vascular endothelial cell growth  
 CC factor, epidermal growth factor, transforming growth factor-beta,  
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,  
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth  
 CC factor, macrophage migration inhibiting factor, endostatin, or  
 CC angiostatin. The present sequence is used in the exemplification of the  
 CC present invention.  
 XX  
 SQ Sequence 206 AA;

Query Match 98.9%; Score 465; DB 8; Length 206;  
 Best Local Similarity 98.9%; Pred. No. 1.2e-38;  
 Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

# RESULT 13

AAP91299

ID AAP91299 standard; protein; 261 AA.

XX

AC AAP91299;

XX

DT 24-OCT-2003 (revised)

DT 14-DEC-1989 (first entry)

XX

DE Human nerve growth factor and human growth hormone fusion protein.

XX

KW Human nerve growth factor; fusion protein; thrombin; geriatric dementia;

KW nervous disorders; human growth hormone.

XX

OS Homo sapiens; (human).

XX

FH Key Location/Qualifiers

FT Region 1. .140

FT Region 141. .143

FT Region 144. .261

XX

PN EP329175-A.

XX

PD 23-AUG-1989.  
 XX  
 PF 17-FEB-1989; 89EP-00102795.  
 XX  
 PR 19-FEB-1988; 88JP-00035042.  
 XX  
 PA (TOYJ ) TOSOH CORP.  
 XX  
 PI Ohtsuka E;  
 XX  
 DR WPI; 1989-243092/34.  
 XX  
 PT New human nerve growth factor gene encoding fusion protein - having  
 PT cleavage site for thrombin, useful for treating geriatric dementia, etc.  
 XX  
 PS Claim 36; Page 31-32; 38pp; English.  
 XX  
 CC Fusion protein consisting of human growth hormone at the N-terminal end  
 CC (1st region), a 3 amino acid sequence representing thrombin recognition  
 CC site, and human beta nerve growth factor (beta-NGF) at the C-terminal.  
 CC Beta-NGF can be used to control geriatric dementia and other nervous  
 CC disorders, and can be released from the fusion protein by incubation with  
 CC thrombin (see AAN90577-8, AAP91034, AAP91041). (Updated on 24-OCT-2003 to  
 CC standardise OS field)  
 XX  
 SQ Sequence 261 AA;

Query Match 98.9%; Score 465; DB 1; Length 261;  
 Best Local Similarity 98.9%; Pred. No. 1.5e-38;  
 Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

# RESULT 14

AAR11740

ID AAR11740 standard; protein; 262 AA.

XX

AC AAR11740;

XX

DT 25-MAR-2003 (revised)

DT 25-JUN-1991 (first entry)

XX

DE Human growth hormone/human nerve growth factor beta fusion protein.

XX

KW hGH; hNGF; nervous system diseases; dementia.

XX

OS Homo sapiens.

XX

PN JP03067598-A.

XX

PD 22-MAR-1991.  
 XX  
 PF 07-AUG-1989; 89JP-00202835.  
 XX  
 PR 07-AUG-1989; 89JP-00202835.  
 XX  
 PA (TOYJ ) TOSOH CORP.  
 XX  
 DR WPI; 1991-128768/18.  
 DR N-PSDB; AAQ11578.  
 XX  
 PT Purificn. of human neuron growth factor beta-sub:unit-contg. protein - by  
 PT contacting with gel having cation exchange gp. in presence of urea.  
 XX  
 PS Disclosure; Fig 1; 7pp; Japanese.  
 XX  
 CC A recombinant human nerve growth factor beta subunit-contg. protein can  
 CC be produced as this fusion protein. It is purified by contacting a gel  
 CC having a cation exchange gp. with the fusion protein, in the presence of  
 CC urea. The purified protein is useful in a medicament for treating  
 CC disorders of the nervous system, eg dementia. (Updated on 25-MAR-2003 to  
 CC correct PF field.)  
 XX  
 SQ Sequence 262 AA;

Query Match 98.9%; Score 465; DB 2; Length 262;  
 Best Local Similarity 98.9%; Pred. No. 1.5e-38;  
 Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
  
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

# RESULT 15

AAR03255

ID AAR03255 standard; protein; 310 AA.

XX

AC AAR03255;

XX

DT 19-JUL-1990 (first entry)

XX

DE Fusion protein of B-cell stimulatory factor-2 and B-cell differentiation  
 DE factor.

XX

KW B-cell stimulatory factor-2; interleukin-6; B-cell differentiation;  
 KW interleukin-5; fusion protein.

XX

OS Homo sapiens.

XX

PN JP02013375-A.

XX

PD 17-JAN-1990.

XX  
 PF 01-JUL-1988; 88JP-00162556.  
 XX  
 PR 01-JUL-1988; 88JP-00162556.  
 XX  
 PA (TOYJ ) TOSOH CORP.  
 XX  
 DR WPI; 1990-062207/09.  
 DR N-PSDB; AAQ02028.  
 XX  
 PT Prepn. of human B cell differentiation factor - from specified DNA  
 PT sequence segment, by recombinant DNA technique, gives protein of  
 PT specified amino acid sequence.  
 XX  
 PS Claim 31; Page 9; 17pp; Japanese.  
 XX  
 CC The protein is produced by fusing DNA encoding BDF (IL-) with DNA  
 CC encoding BSF-2 (IL-5) and ligating the product into an expression vector  
 CC See also AAR05311 and AAR05313  
 XX  
 SQ Sequence 310 AA;

Query Match 98.9%; Score 465; DB 2; Length 310;  
 Best Local Similarity 98.9%; Pred. No. 1.8e-38;  
 Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60  
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

Search completed: February 11, 2005, 18:14:44  
 Job time : 96.2251 secs

OM protein - protein search, using sw model

Run on: February 11, 2005, 18:04:56 ; Search time 24.2731 Seconds  
(without alignments)  
282.936 Million cell updates/sec

Title: US-10-054-873-2  
Perfect score: 470  
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

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3: /cgn2\_6/ptodata/1/iaa/6A\_COMB.pep:\*  
4: /cgn2\_6/ptodata/1/iaa/6B\_COMB.pep:\*  
5: /cgn2\_6/ptodata/1/iaa/PCTUS\_COMB.pep:\*  
6: /cgn2\_6/ptodata/1/iaa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	465	98.9	192	1	US-08-093-383-1
2	460	97.9	191	3	US-09-284-878-5
3	460	97.9	191	4	US-09-462-941-1
4	460	97.9	191	4	US-09-554-451-1
5	460	97.9	194	2	US-08-383-621-4
6	460	97.9	194	3	US-08-459-906-4
7	460	97.9	198	4	US-09-949-016-8650
8	460	97.9	198	4	US-09-949-016-8651
9	460	97.9	198	4	US-09-949-016-8652
10	460	97.9	198	4	US-09-949-016-8653
11	460	97.9	198	4	US-09-949-016-8654

12	460	97.9	217	3	US-08-589-028-10	Sequence 10, Appl
13	460	97.9	217	3	US-08-784-582-10	Sequence 10, Appl
14	460	97.9	217	3	US-08-785-271-10	Sequence 10, Appl
15	460	97.9	217	3	US-08-759-628-11	Sequence 11, Appl
16	460	97.9	217	3	US-09-284-878-1	Sequence 1, Appli
17	460	97.9	217	4	US-09-929-918-9	Sequence 9, Appli
18	460	97.9	241	3	US-09-424-620B-25	Sequence 25, Appl
19	460	97.9	242	4	US-09-949-016-8660	Sequence 8660, Ap
20	460	97.9	242	4	US-09-949-016-8661	Sequence 8661, Ap
21	460	97.9	242	4	US-09-949-016-8662	Sequence 8662, Ap
22	460	97.9	242	4	US-09-949-016-8663	Sequence 8663, Ap
23	460	97.9	242	4	US-09-949-016-8664	Sequence 8664, Ap
24	460	97.9	245	4	US-09-280-030-66	Sequence 66, Appl
25	460	97.9	274	3	US-08-784-582-71	Sequence 71, Appl
26	460	97.9	360	3	US-08-784-582-73	Sequence 73, Appl
27	460	97.9	448	4	US-09-916-229A-2	Sequence 2, Appli
28	455	96.8	191	4	US-09-554-451-3	Sequence 3, Appli
29	454	96.6	191	3	US-09-465-461-1	Sequence 1, Appli
30	454	96.6	217	1	US-08-187-756C-4	Sequence 4, Appli
31	454	96.6	217	1	US-08-469-486-51	Sequence 51, Appl
32	454	96.6	217	2	US-08-469-658-51	Sequence 51, Appl
33	454	96.6	217	2	US-08-710-324A-4	Sequence 4, Appli
34	454	96.6	217	4	US-09-411-657-4	Sequence 4, Appli
35	453	96.4	400	4	US-09-420-819-37	Sequence 37, Appl
36	453	96.4	401	4	US-09-420-819-36	Sequence 36, Appl
37	447	95.1	191	3	US-08-800-215C-18	Sequence 18, Appl
38	445	94.7	191	3	US-08-800-215C-16	Sequence 16, Appl
39	445	94.7	191	3	US-08-800-215C-20	Sequence 20, Appl
40	364.5	77.6	176	3	US-08-791-728-1	Sequence 1, Appli
41	364.5	77.6	176	3	US-08-990-774-1	Sequence 1, Appli
42	358.5	76.3	176	3	US-08-791-728-2	Sequence 2, Appli
43	358.5	76.3	176	3	US-08-990-774-2	Sequence 2, Appli
44	340	72.3	168	6	5424199-3	Patent No. 5424199
45	340	72.3	168	6	5424199-3	Patent No. 5424199

#### ALIGNMENTS

#### RESULT 1

US-08-093-383-1

; Sequence 1, Application US/08093383

; Patent No. 5489529

; GENERAL INFORMATION:

; APPLICANT: DeBoer, Herman A.

; APPLICANT: Heyneker, Herbert L.

; APPLICANT: Seeburg, Peter H.

; TITLE OF INVENTION: DNA for Expression of Bovine Growth Hormone

; NUMBER OF SEQUENCES: 30

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Genentech, Inc.

; STREET: 460 Point San Bruno Blvd

; CITY: South San Francisco

; STATE: California

; COUNTRY: USA

; ZIP: 94080

; COMPUTER READABLE FORM:

```

; MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: patin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/093,383
; FILING DATE: 14-JUL-1993
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/619827
; FILING DATE: 28-NOV-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/198824
; FILING DATE: 05-APR-1988
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 06/632361
; FILING DATE: 19-JUL-1984
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 06/303687
; FILING DATE: 18-SEP-1981
; ATTORNEY/AGENT INFORMATION:
; NAME: Johnston, Sean A.
; REGISTRATION NUMBER: P35,910
; REFERENCE/DOCKET NUMBER: 46C4
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415/225-3562
; TELEFAX: 415/952-9881
; TELEX: 910/371-7168
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 192 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
US-08-093-383-1

```

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Query Match          98.9%; Score 465; DB 1; Length 192;
Best Local Similarity 98.9%; Pred. No. 2.6e-51;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

```

Qy      1 MFPTIPLSRLEFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
        ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLEFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
        ||||||||||||||||||||||||||||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

```

# RESULT 2

```

US-09-284-878-5
; Sequence 5, Application US/09284878
; Patent No. 6342375
; GENERAL INFORMATION:
; APPLICANT: Olazaran, Martha Guerrero
; APPLICANT: Saldana, Hugo Barrera
; APPLICANT: Salvado, Jose Maria Viader

```



```
; TITLE OF INVENTION: Genetically Modified Methylophilic P. pastoris Yeast
for the
; TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone
; FILE REFERENCE: 1829.0010000
; CURRENT APPLICATION NUMBER: US/09/284,878
; CURRENT FILING DATE: 1999-07-21
; PRIOR APPLICATION NUMBER: PCT/MX97/00033
; PRIOR FILING DATE: 1997-10-24
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 5
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-284-878-5
```

```
Query Match          97.9%; Score 460; DB 3; Length 191;
Best Local Similarity 98.9%; Pred. No. 1.1e-50;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
```

```
Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          ||||||||||||||||||||||||||||
Db      61  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91
```

# RESULT 3

```
US-09-462-941-1
; Sequence 1, Application US/09462941
; Patent No. 6608183
; GENERAL INFORMATION:
; APPLICANT: Cox III, George N
; APPLICANT: Bolder Biotechnology, Inc.
; TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
; FILE REFERENCE: 4152-1-PUS
; CURRENT APPLICATION NUMBER: US/09/462,941
; CURRENT FILING DATE: 2000-01-14
; PRIOR APPLICATION NUMBER: 60/052,516
; PRIOR FILING DATE: 1997-07-14
; NUMBER OF SEQ ID NOS: 41
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 1
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-462-941-1
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Query Match          97.9%; Score 460; DB 4; Length 191;
Best Local Similarity 98.9%; Pred. No. 1.1e-50;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
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```
Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60
```

Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||  
 Db 61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91

RESULT 4

US-09-554-451-1

; Sequence 1, Application US/09554451

; Patent No. 6680207

; GENERAL INFORMATION:

; APPLICANT: Jonathan Paul MURPHY  
 ; Anthony ATKINSON

; TITLE OF INVENTION: Detection of Molecules in Samples

; NUMBER OF SEQUENCES: 9

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Pillsbury Winthrop, L.L.P.

; STREET: 1100 New York Ave., N.W.

; CITY: Washington

; STATE: D.C.

; COUNTRY: U.S.A.

; ZIP: 20005

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Diskette

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: MS Word

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/09/554,451

; FILING DATE: 15-May-2000

; CLASSIFICATION: <Unknown>

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: PCT/GB98/03449

; FILING DATE: No. 6680207ember 16, 1998

; APPLICATION NUMBER: GB 9723955.2

; FILING DATE: No. 6680207ember 14, 1997

; INFORMATION FOR SEQ ID NO: 1:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 191 amino acids

; TYPE: amino acid

; STRANDEDNESS: single

; TOPOLOGY: linear

; SEQUENCE DESCRIPTION: SEQ ID NO: 1:

US-09-554-451-1

Query Match 97.9%; Score 460; DB 4; Length 191;

Best Local Similarity 98.9%; Pred. No. 1.1e-50;

Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYEFEEAYIPKEQKYSFLQNPQTSLSFSES IPT 61  
 ||||||||||||||||||

Db 1 FPTIPLSRLFDNAMLRAHRLHQLAFDITYEFEEAYIPKEQKYSFLQNPQTSLSFSES IPT 60

Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||

Db 61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91

US-08-383-621-4

US-08-383-621-4

y  
o

2 FPTIPLSRLFDNAMLRAHRLHQAFDITYQEFEEAYIPKEQKYSFLQNPTSLSFSES IPT 61  
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  
4 FPTIPLSRLFDNAMLRAHRLHQAFDITYQEFEEAYIPKEQKYSFLQNPTSLCFSSES IPT 63



Db 4 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 63

Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 |||

Db 64 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 94

RESULT 7

US-09-949-016-8650  
 ; Sequence 8650, Application US/09949016  
 ; Patent No. 6812339  
 ; GENERAL INFORMATION:  
 ; APPLICANT: VENTER, J. Craig et al.  
 ; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED  
 ; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES  
 THEREOF  
 ; FILE REFERENCE: CL001307  
 ; CURRENT APPLICATION NUMBER: US/09/949,016  
 ; CURRENT FILING DATE: 2000-04-14  
 ; PRIOR APPLICATION NUMBER: 60/241,755  
 ; PRIOR FILING DATE: 2000-10-20  
 ; PRIOR APPLICATION NUMBER: 60/237,768  
 ; PRIOR FILING DATE: 2000-10-03  
 ; PRIOR APPLICATION NUMBER: 60/231,498  
 ; PRIOR FILING DATE: 2000-09-08  
 ; NUMBER OF SEQ ID NOS: 207012  
 ; SOFTWARE: FastSEQ for Windows Version 4.0  
 ; SEQ ID NO 8650  
 ; LENGTH: 198  
 ; TYPE: PRT  
 ; ORGANISM: Human  
 US-09-949-016-8650

Query Match 97.9%; Score 460; DB 4; Length 198;  
 Best Local Similarity 98.9%; Pred. No. 1.2e-50;  
 Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61  
 |||

Db 47 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 106

Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 |||

Db 107 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 137

RESULT 8

US-09-949-016-8651  
 ; Sequence 8651, Application US/09949016  
 ; Patent No. 6812339  
 ; GENERAL INFORMATION:  
 ; APPLICANT: VENTER, J. Craig et al.  
 ; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED  
 ; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES  
 THEREOF  
 ; FILE REFERENCE: CL001307  
 ; CURRENT APPLICATION NUMBER: US/09/949,016

```
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 8651
; LENGTH: 198
; TYPE: PRT
; ORGANISM: Human
US-09-949-016-8651
```

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Query Match          97.9%; Score 460; DB 4; Length 198;
Best Local Similarity 98.9%; Pred. No. 1.2e-50;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
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Qy      2  FPTIPLSRLEFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          |||
Db      47  FPTIPLSRLEFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 106

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          |||
Db      107 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 137
```

#### RESULT 9

```
US-09-949-016-8652
; Sequence 8652, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES
THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 8652
; LENGTH: 198
; TYPE: PRT
; ORGANISM: Human
US-09-949-016-8652
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Query Match          97.9%; Score 460; DB 4; Length 198;
Best Local Similarity 98.9%; Pred. No. 1.2e-50;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
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Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61  
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 Db 47 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 106

Qy 62 PSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92  
 |||||||||||||||||||||||||||||||||  
 Db 107 PSNREETQQKSNLELLLRISLLLIQSWLEPVQ 137

RESULT 10

US-09-949-016-8653  
 ; Sequence 8653, Application US/09949016  
 ; Patent No. 6812339  
 ; GENERAL INFORMATION:  
 ; APPLICANT: VENTER, J. Craig et al.  
 ; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED  
 ; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES  
 THEREOF  
 ; FILE REFERENCE: CL001307  
 ; CURRENT APPLICATION NUMBER: US/09/949,016  
 ; CURRENT FILING DATE: 2000-04-14  
 ; PRIOR APPLICATION NUMBER: 60/241,755  
 ; PRIOR FILING DATE: 2000-10-20  
 ; PRIOR APPLICATION NUMBER: 60/237,768  
 ; PRIOR FILING DATE: 2000-10-03  
 ; PRIOR APPLICATION NUMBER: 60/231,498  
 ; PRIOR FILING DATE: 2000-09-08  
 ; NUMBER OF SEQ ID NOS: 207012  
 ; SOFTWARE: FastSEQ for Windows Version 4.0  
 ; SEQ ID NO 8653  
 ; LENGTH: 198  
 ; TYPE: PRT  
 ; ORGANISM: Human  
 US-09-949-016-8653

Query Match 97.9%; Score 460; DB 4; Length 198;  
 Best Local Similarity 98.9%; Pred. No. 1.2e-50;  
 Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61  
 |||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 47 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 106

Qy 62 PSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92  
 |||||||||||||||||||||||||||||||||  
 Db 107 PSNREETQQKSNLELLLRISLLLIQSWLEPVQ 137

RESULT 11

US-09-949-016-8654  
 ; Sequence 8654, Application US/09949016  
 ; Patent No. 6812339  
 ; GENERAL INFORMATION:  
 ; APPLICANT: VENTER, J. Craig et al.  
 ; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED





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;   OPERATING SYSTEM:  PC-DOS/MS-DOS
;   SOFTWARE:  PatentIn Release #1.0, Version #1.30
;   CURRENT APPLICATION DATA:
;   APPLICATION NUMBER:  US/08/589,028
;   FILING DATE:  Concurrently Herewith
;   CLASSIFICATION:  435
;   ATTORNEY/AGENT INFORMATION:
;   NAME:  Highlander, Steven L.
;   REGISTRATION NUMBER:  47,642
;   REFERENCE/DOCKET NUMBER:  UTSD:426\HYL
;   TELECOMMUNICATION INFORMATION:
;   TELEPHONE:  (512) 418-3000
;   TELEFAX:  (512) 474-7577
;   INFORMATION FOR SEQ ID NO:  10:
;   SEQUENCE CHARACTERISTICS:
;   LENGTH:  217 amino acids
;   TYPE:  amino acid
;   STRANDEDNESS:
;   TOPOLOGY:  linear
US-08-589-028-10

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```

Query Match          97.9%;  Score 460;  DB 3;  Length 217;
Best Local Similarity 98.9%;  Pred. No. 1.4e-50;
Matches   90;  Conservative   0;  Mismatches   1;  Indels   0;  Gaps   0;

```

```

Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
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Db      27  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 86

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          ||||||||||||||||||||||||
Db      87  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

```

# RESULT 13

US-08-784-582-10

; Sequence 10, Application US/08784582

; Patent No. 6110707

## ; GENERAL INFORMATION:

```

;   APPLICANT:  Newgard, Christopher B.
;   APPLICANT:  Halban, Philippe A.
;   APPLICANT:  No. 6110707mington, Karl D.
;   APPLICANT:  Clark, Samuel A.
;   APPLICANT:  Thigpen, Anice E.
;   APPLICANT:  Quaade, Christian
;   APPLICANT:  Kruse, Fred
;   APPLICANT:  McGarry, Dennis
;   TITLE OF INVENTION:  RECOMBINANT EXPRESSION OF PROTEINS FROM
;   TITLE OF INVENTION:  SECRETORY CELL LINES
;   NUMBER OF SEQUENCES:  79
;   CORRESPONDENCE ADDRESS:
;   ADDRESSEE:  Arnold, White & Durkee
;   STREET:  P.O. Box 4433
;   CITY:  Houston
;   STATE:  Texas
;   COUNTRY:  USA
;   ZIP:  77210

```

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; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/784,582
; FILING DATE: Concurrently Herewith
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/028,427
; FILING DATE: 15-OCT-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: UTSD:514
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 10:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
US-08-784-582-10

```

```

Query Match          97.9%; Score 460; DB 3; Length 217;
Best Local Similarity 98.9%; Pred. No. 1.4e-50;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

```

Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
        ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      27 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy      62 PSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92
        ||||||||||||||||||||||||||||
Db      87 PSNREETQQKSNLELLLRISLLLIQSWLEPVQ 117

```

# RESULT 14

US-08-785-271-10

```

; Sequence 10, Application US/08785271
; Patent No. 6194176
; GENERAL INFORMATION:
; APPLICANT: Newgard, Christopher B.
; APPLICANT: Halban, Philippe A.
; APPLICANT: No. 6194176mington, Karl D.
; APPLICANT: Clark, Samuel A.
; APPLICANT: Thigpen, Anice E.
; APPLICANT: Quaade, Christian
; APPLICANT: Kruse, Fred
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
; TITLE OF INVENTION: SECRETORY CELL LINES

```

```

;   NUMBER OF SEQUENCES: 56
;   CORRESPONDENCE ADDRESS:
;       ADDRESSEE: Arnold, White & Durkee
;       STREET: P.O. Box 4433
;       CITY: Houston
;       STATE: Texas
;       COUNTRY: USA
;       ZIP: 77210
;   COMPUTER READABLE FORM:
;       MEDIUM TYPE: Floppy disk
;       COMPUTER: IBM PC compatible
;       OPERATING SYSTEM: PC-DOS/MS-DOS
;       SOFTWARE: PatentIn Release #1.0, Version #1.30
;   CURRENT APPLICATION DATA:
;       APPLICATION NUMBER: US/08/785,271
;       FILING DATE: Concurrently Herewith
;       CLASSIFICATION: 435
;   PRIOR APPLICATION DATA:
;       APPLICATION NUMBER: US 08/589,028
;       FILING DATE: 19-JAN-1996
;   ATTORNEY/AGENT INFORMATION:
;       NAME: Highlander, Steven L.
;       REGISTRATION NUMBER: 37,642
;       REFERENCE/DOCKET NUMBER: UTSD:513
;   TELECOMMUNICATION INFORMATION:
;       TELEPHONE: 512/418-3000
;       TELEFAX: 512/474-7577
;   INFORMATION FOR SEQ ID NO: 10:
;       SEQUENCE CHARACTERISTICS:
;           LENGTH: 217 amino acids
;           TYPE: amino acid
;           STRANDEDNESS:
;           TOPOLOGY: linear
US-08-785-271-10

```

```

Query Match          97.9%; Score 460; DB 3; Length 217;
Best Local Similarity 98.9%; Pred. No. 1.4e-50;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

```

Qy      2  FPTIPLSRFLDNAMLRHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      27  FPTIPLSRFLDNAMLRHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 86

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          ||||||||||||||||||||||||||||
Db      87  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

```

RESULT 15

US-08-759-628-11

```

; Sequence 11, Application US/08759628
; Patent No. 6225446
; GENERAL INFORMATION:
;   APPLICANT: Altmann, Scott W.
;   APPLICANT: Rock, Fernando L.
;   APPLICANT: Bazan, J. Fernando
;   APPLICANT: Kastelein, Robert A.

```



```

Db      27  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          |||||
Db      87  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

```

Search completed: February 11, 2005, 18:27:02  
Job time : 25.2731 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: February 11, 2005, 17:42:33 ; Search time 17.4834 Seconds  
(without alignments)  
506.306 Million cell updates/sec

Title: US-10-054-873-2  
Perfect score: 470  
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR\_79:\*  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	%		DB	ID	Description
		Query	Match Length			
1	460	97.9	217	1	STHU	somatotropin 1 pre
2	460	97.9	217	2	I67410	somatotropin - rhe
3	422	89.8	217	1	STHUV	somatotropin 2 pre
4	422	89.8	256	1	STHUV2	somatotropin 2 pre
5	402	85.5	217	2	I67411	somatotropin - rhe
6	397	84.5	217	2	I67409	chorionic somatoma
7	396	84.3	212	2	I67408	chorionic somatoma
8	396	84.3	217	2	I53267	chorionic somatoma
9	381	81.1	217	1	LCHUC	choriomammotropin
10	381	81.1	217	2	E32435	choriomammotropin
11	359.5	76.5	215	2	A26449	choriomammotropin
12	310.5	66.1	216	2	B49159	somatotropin - gol
13	307.5	65.4	190	2	PN0140	somatotropin - sei

14	304.5	64.8	216	1	STMS	somatotropin precu
15	302.5	64.4	190	1	STHO	somatotropin - hor
16	302.5	64.4	216	1	STRT	somatotropin precu
17	302.5	64.4	216	2	S49483	somatotropin precu
18	301.5	64.1	190	2	JK0219	somatotropin - Afr
19	301.5	64.1	216	1	STPG	somatotropin precu
20	301.5	64.1	216	2	I46145	somatotropin precu
21	301.5	64.1	216	2	JC4632	somatotropin precu
22	299.5	63.7	216	2	A37782	somatotropin precu
23	297.5	63.3	190	1	A61584	somatotropin - alp
24	295.5	62.9	190	2	JS0429	somatotropin - Arc
25	289.5	61.6	217	1	STBO	somatotropin precu
26	289.5	61.6	217	1	STGT	somatotropin precu
27	289.5	61.6	217	1	STSH	somatotropin precu
28	289.5	61.6	217	2	S32682	somatotropin - dom
29	278.5	59.3	216	2	JC1514	somatotropin precu
30	275.5	58.6	216	2	A60509	somatotropin precu
31	268.5	57.1	191	2	A60625	somatotropin - gre
32	261	55.5	216	2	S04929	somatotropin precu
33	257.5	54.8	190	2	S21750	somatotropin - Rus
34	247.5	52.7	190	2	A56816	somatotropin - bul
35	238.5	50.7	215	2	I51188	somatotropin - bul
36	237.5	50.5	215	2	JS0037	somatotropin precu
37	234	49.8	199	2	B32435	choriomammotropin-
38	233.5	49.7	195	2	I51250	somatotropin - bow
39	225.5	48.0	183	2	A60623	somatotropin - blu
40	206	43.8	87	4	I67761	EST/beta-Gal mutan
41	174.5	37.1	209	2	JT0483	somatotropin I pre
42	171	36.4	163	2	JN0387	somatotropin - sei
43	165.5	35.2	190	2	JC5682	somatotropin - com
44	165.5	35.2	210	2	I50763	somatotropin - nob
45	165.5	35.2	210	2	S21915	somatotropin - sil

# ALIGNMENTS

## RESULT 1

### STHU

somatotropin 1 precursor [validated] - human

N;Alternate names: growth hormone 1; hGH-N; pituitary somatotropin

N;Contains: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, short form

C;Species: Homo sapiens (man)

C;Date: 24-Apr-1984 #sequence\_revision 10-Feb-1995 #text\_change 09-Jul-2004

C;Accession: A93731; A32435; A93694; A94247; A90051; A93397; A93778; A91764; A90217; A92311; A61466; S09685; I84549; A01510

R;DeNoto, F.M.; Moore, D.D.; Goodman, H.M.

Nucleic Acids Res. 9, 3719-3730, 1981

A;Title: Human growth hormone DNA sequence and mRNA structure: possible alternative splicing.

A;Reference number: A93731; MUID:82014939; PMID:6269091

A;Accession: A93731

A;Molecule type: DNA

A;Residues: 1-217 <DEN>

A;Cross-references: UNIPROT:P01241; GB:V00520

A;Note: the 20K short form somatotropin lacks residues 58-72 (32-46 in the active hormone) as the result of splicing at the alternate junction of the second intron during mRNA processing  
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.  
Genomics 4, 479-497, 1989  
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A;Reference number: A32435; MUID:89307277; PMID:2744760  
A;Accession: A32435  
A;Molecule type: DNA  
A;Residues: 1-217 <CHE>  
A;Cross-references: GB:J03071; NID:g183148; PIDN:AAA52549.1; PID:g183149  
R;Roskam, W.; Rougeon, F.  
Nucleic Acids Res. 7, 305-320, 1979  
A;Title: Molecular cloning and nucleotide sequence of the human growth hormone structural gene.  
A;Reference number: A93694; MUID:80034477; PMID:386281  
A;Accession: A93694  
A;Molecule type: mRNA  
A;Residues: 1-217 <ROS>  
A;Cross-references: GB:V00519  
A;Note: 35-Pro was also found  
R;Martial, J.A.; Hallewell, R.A.; Baxter, J.D.; Goodman, H.M.  
Science 205, 602-607, 1979  
A;Title: Human growth hormone: complementary DNA cloning and expression in bacteria.  
A;Reference number: A94247; MUID:79203293; PMID:377496  
A;Accession: A94247  
A;Molecule type: mRNA  
A;Residues: 1-217 <MAR>  
R;Li, C.H.; Dixon, J.S.; Liu, W.K.  
Arch. Biochem. Biophys. 133, 70-91, 1969  
A;Title: Human pituitary growth hormone. XIX. The primary structure of the hormone.  
A;Reference number: A90048; MUID:69289202; PMID:5810834  
A;Contents: annotation  
R;Li, C.H.; Dixon, J.S.  
Arch. Biochem. Biophys. 146, 233-236, 1971  
A;Title: Human pituitary growth hormone. XXXII. The primary structure of the hormone: revision.  
A;Reference number: A90051; MUID:72143935; PMID:5144027  
A;Accession: A90051  
A;Molecule type: protein  
A;Residues: 27-94;96-217 <LIC>  
R;Niall, H.D.  
Nature New Biol. 230, 90-91, 1971  
A;Title: Revised primary structure for human growth hormone.  
A;Reference number: A93397; MUID:71139765; PMID:5279046  
A;Accession: A93397  
A;Molecule type: protein  
A;Residues: 27-51 <NIA>  
R;Niall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.  
Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971  
A;Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution from a primordial peptide by gene reduplication.  
A;Reference number: A93778; MUID:71153968; PMID:5279528



A;Accession: A93778  
 A;Molecule type: protein  
 A;Residues: 119-120;157-159 <NI2>  
 R;Niall, H.D.  
 in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin,  
 Griffiths, K., ed., pp.13-20, Alpha Omega Alpha Press, Cardiff, Wales, 1972  
 A;Title: The chemistry of the human lactogenic hormones.  
 A;Reference number: A94427  
 A;Contents: annotation; somatotropin revision  
 R;Bewley, T.A.; Dixon, J.S.; Li, C.H.  
 Int. J. Pept. Protein Res. 4, 281-287, 1972  
 A;Title: Sequence comparison of human pituitary growth hormone, human chorionic  
 somatomammotropin, and ovine pituitary growth and lactogenic hormones.  
 A;Reference number: A91764; MUID:73092028; PMID:4675454  
 A;Accession: A91764  
 A;Molecule type: protein  
 A;Residues: 27-217 <BEW>  
 R;Lewis, U.J.; Bonewald, L.F.; Lewis, L.J.  
 Biochem. Biophys. Res. Commun. 92, 511-516, 1980  
 A;Title: The 20,000-dalton variant of human growth hormone: location of the  
 amino acid deletions.  
 A;Reference number: A90217; MUID:80130196; PMID:7356479  
 A;Contents: somatotropin, 20K short variant  
 A;Accession: A90217  
 A;Molecule type: protein  
 A;Residues: 46-57;73-80 <LEW>  
 R;Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, O.J.;  
 Turner, C.; Cary, P.D.; Crane-Robinson, C.  
 J. Biol. Chem. 256, 2395-2401, 1981  
 A;Title: The 20,000 molecular weight variant of human growth hormone.  
 Preparation and some physical and chemical properties.  
 A;Reference number: A92311; MUID:81117361; PMID:7462247  
 A;Contents: somatotropin, 20K short variant  
 A;Accession: A92311  
 A;Molecule type: protein  
 A;Residues: 27-57;73-79 <CHA>  
 R;Singh, R.N.P.; Seavey, B.K.; Lewis, L.J.; Lewis, U.J.  
 J. Protein Chem. 2, 425-436, 1983  
 A;Title: Human growth hormone peptide 1-43: isolation from pituitary glands.  
 A;Reference number: A61466  
 A;Accession: A61466  
 A;Molecule type: protein  
 A;Residues: 27-69 <SIN>  
 A;Note: growth hormone 5K peptide has insulin potentiating activity; its  
 physiological production is uncertain  
 R;Robson, V.M.J.; Rae, I.D.; NG, F.  
 Biol. Chem. Hoppe-Seyler 371, 423-431, 1990  
 A;Title: Identification of the aspartimide structure in a previously-reported  
 peptide.  
 A;Reference number: S09685; MUID:90334745; PMID:2378679  
 A;Accession: S09685  
 A;Molecule type: protein  
 A;Residues: 27-34,'L',36-47 <ROB>  
 R;de Vos, A.M.; Ultsch, M.; Kossiakoff, A.A.  
 Science 255, 306-312, 1992  
 A;Title: Human growth hormone and extracellular domain of its receptor: crystal  
 structure of the complex.

A;Reference number: A41728; MUID:92196577; PMID:1549776  
 A;Contents: annotation; X-ray crystallography, 2.8 angstroms  
 A;Note: the structure of the complex with growth hormone receptor is described  
 R;Gray, G.L.; Baldrige, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.  
 Gene 39, 247-254, 1985  
 A;Title: Periplasmic production of correctly processed human growth hormone in  
 Escherichia coli: natural and bacterial signal sequences are interchangeable.  
 A;Reference number: I41126; MUID:86137393; PMID:3912261  
 A;Accession: I84549  
 A;Status: preliminary; translated from GB/EMBL/DDBJ  
 A;Molecule type: mRNA  
 A;Residues: 1-26 <RES>  
 A;Cross-references: GB:M14398; NID:g183158; PIDN:AAA52554.1; PID:g183159  
 C;Comment: The gene for this hormone is transcribed only in somatotrophic cells  
 of the anterior pituitary.  
 C;Comment: About 90% of somatotropin is the 22K long form.  
 C;Genetics:  
 A;Gene: GDB:GH1  
 A;Cross-references: GDB:119982; OMIM:139250  
 A;Map position: 17q23.1-17q23.3  
 A;Introns: 4/1; 57/3; 97/3; 152/3  
 C;Superfamily: prolactin  
 C;Keywords: alternative splicing; hormone; pituitary  
 F;1-26/Domain: signal sequence #status predicted <SIG>  
 F;27-217/Product: somatotropin 1, long form #status experimental <SOL>  
 F;27-69/Product: growth hormone 5K peptide #status experimental <5KP>  
 F;27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>  
 F;79-191,208-215/Disulfide bonds: #status experimental

Query Match 97.9%; Score 460; DB 1; Length 217;  
 Best Local Similarity 98.9%; Pred. No. 9.1e-42;  
 Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy	2	FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT	61
Db	27	FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT	86
Qy	62	PSNREETQQKSNLELLRISLLLIQSWLEPVQ	92
Db	87	PSNREETQQKSNLELLRISLLLIQSWLEPVQ	117

## RESULT 2

I67410

somatotropin - rhesus macaque

N;Alternate names: growth hormone

C;Species: Macaca mulatta (rhesus macaque)

C;Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 09-Jul-2004

C;Accession: I67410; A05094

R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

Endocrinology 133, 1744-1752, 1993

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related  
 complementary deoxyribonucleic acids differentially expressed during pregnancy  
 in the rhesus monkey placenta.

A;Reference number: I53267; MUID:94008724; PMID:8404617

A;Accession: I67410

A;Status: translated from GB/EMBL/DDBJ

A;Molecule type: mRNA  
A;Residues: 1-217 <RES>  
A;Cross-references: UNIPROT:P33093; GB:L16556; NID:g293114; PIDN:AAA18842.1; PID:g293115  
R;Li, C.H.; Chung, D.; Lahm, H.W.; Stein, S.  
Arch. Biochem. Biophys. 245, 287-291, 1986  
A;Title: The primary structure of monkey pituitary growth hormone.  
A;Reference number: A05094; MUID:86129460; PMID:3080959  
A;Accession: A05094  
A;Molecule type: protein  
A;Residues: 27-99,'Q',101-178,'D',180-217 <LIC>  
A;Note: the monkey species is not identified in the reference  
R;Raben, M.S.  
Science 125, 883-884, 1957  
A;Title: Preparation of growth hormone from pituitaries of man and monkey.  
A;Reference number: A44774  
A;Contents: annotation; identification of source organism  
C;Superfamily: prolactin

Query Match 97.9%; Score 460; DB 2; Length 217;  
Best Local Similarity 98.9%; Pred. No. 9.1e-42;  
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          |||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      27  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          ||||||||||||||||||||||||||||
Db      87  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117
```

### RESULT 3

STHUV

somatotropin 2 precursor - human

N;Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental somatotropin

N;Contains: somatotropin 2, long splice form; somatotropin 2, short splice form

C;Species: Homo sapiens (man)

C;Date: 17-Dec-1982 #sequence\_revision 10-Feb-1995 #text\_change 09-Jul-2004

C;Accession: D32435; B28072; A01511; I52104; A60711

R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.

Genomics 4, 479-497, 1989

A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

A;Reference number: A32435; MUID:89307277; PMID:2744760

A;Accession: D32435

A;Molecule type: DNA

A;Residues: 1-217 <CHE>

A;Cross-references: UNIPROT:P01242; GB:J03071; NID:g183148; PIDN:AAA52552.1; PID:g183152

R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaver, S.A.

J. Biol. Chem. 263, 9001-9006, 1988

A;Title: Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.

A;Reference number: A92725; MUID:88243769; PMID:3379057

A;Accession: B28072  
 A;Molecule type: mRNA  
 A;Residues: 1-217 <COO>  
 R;Seeburg, P.H.  
 DNA 1, 239-249, 1982  
 A;Title: The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone.  
 A;Reference number: A01511; MUID:83182010; PMID:7169009  
 A;Accession: A01511  
 A;Molecule type: DNA  
 A;Residues: 1-34,'P',36-217 <SEE>  
 R;Igout, A.; Scippo, M.L.; Frankenke, F.; Hennen, G.  
 Arch. Int. Physiol. Biochim. 96, 63-67, 1988  
 A;Title: Cloning and nucleotide sequence of placental hGH-V cDNA.  
 A;Reference number: I52104; MUID:89024984; PMID:2460050  
 A;Accession: I52104  
 A;Status: preliminary; translated from GB/EMBL/DDBJ  
 A;Molecule type: mRNA  
 A;Residues: 1-217 <IGO>  
 A;Cross-references: GB:M38451; NID:g183179; PIDN:AAA35891.1; PID:g183180  
 R;Frankenne, F.; Scippo, M.L.; Van Beeumen, J.; Igout, A.; Hennen, G.  
 J. Clin. Endocrinol. Metab. 71, 15-18, 1990  
 A;Title: Identification of placental human growth hormone as the growth hormone-V gene expression product.  
 A;Reference number: A60711; MUID:90317018; PMID:2196278  
 A;Accession: A60711  
 A;Molecule type: protein  
 A;Residues: 27-44;46-57 <FRA>  
 A;Experimental source: tissue placenta  
 A;Note: partial glycosylation was demonstrated by lectin binding  
 C;Comment: This gene is expressed by the placenta.  
 C;Genetics:  
 A;Gene: GDB:GH2  
 A;Cross-references: GDB:119983; OMIM:139240  
 A;Map position: 17q22-17q24  
 A;Introns: 4/1; 57/3; 97/3; 152/3  
 C;Superfamily: prolactin  
 C;Keywords: alternative splicing; glycoprotein; hormone; placenta  
 F;1-26/Domain: signal sequence #status predicted <SIG>  
 F;27-217/Product: somatotropin 2, long splice form #status predicted <SOL>  
 F;27-57,73-217/Product: somatotropin 2, short splice form #status predicted <SOS>  
 F;79-191,208-215/Disulfide bonds: #status predicted  
 F;166/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 89.8%; Score 422; DB 1; Length 217;  
 Best Local Similarity 92.3%; Pred. No. 1e-37;  
 Matches 84; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
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Db      27  FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy      62  PSNREETQQKSNELELLRISLLLIQSWLEPVQ 92
      ||||:|||||
Db      87  PSNRVKTQQKSNELELLRISLLLIQSWLEPVQ 117
  
```

# RESULT 4

STHUV2

somatotropin 2 precursor, splice form 2 - human

N;Alternate names: growth hormone variant-2; placental somatotropin form 2

C;Species: Homo sapiens (man)

C;Date: 30-Sep-1989 #sequence\_revision 10-Feb-1995 #text\_change 09-Jul-2004

C;Accession: A28072

R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaber, S.A.

J. Biol. Chem. 263, 9001-9006, 1988

A;Title: Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.

A;Reference number: A92725; MUID:88243769; PMID:3379057

A;Accession: A28072

A;Molecule type: mRNA

A;Residues: 1-256 <COO>

A;Cross-references: UNIPROT:P01242

A;Note: an alternative splice junction for intron 4 is used

C;Genetics:

A;Gene: GDB:GH2

A;Cross-references: GDB:119983; OMIM:139240

A;Map position: 17q22-17q24

A;Introns: 4/1; 57/3; 97/3; 152/3

C;Superfamily: prolactin

C;Keywords: alternative splicing; hormone; placenta

F;1-26/Domain: signal sequence #status predicted <SIG>

F;27-256/Product: somatotropin 2 splice form 2 #status predicted <MAT>

Query Match 89.8%; Score 422; DB 1; Length 256;

Best Local Similarity 92.3%; Pred. No. 1.3e-37;

Matches 84; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      27  FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          ||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      87  PSNRVKTQQKSNLELLRISLLLIQSWLEPVQ 117

```

# RESULT 5

I67411

somatotropin - rhesus macaque

N;Alternate names: growth hormone

C;Species: Macaca mulatta (rhesus macaque)

C;Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 09-Jul-2004

C;Accession: I67411

R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

Endocrinology 133, 1744-1752, 1993

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.

A;Reference number: I53267; MUID:94008724; PMID:8404617

A;Accession: I67411

A;Status: preliminary; translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Cross-references: UNIPROT:Q07370; GB:L16555; NID:g293116; PIDN:AAA20180.1; PID:g293117

C;Superfamily: prolactin

Query Match 85.5%; Score 402; DB 2; Length 217;  
Best Local Similarity 85.7%; Pred. No. 1.4e-35;  
Matches 78; Conservative 6; Mismatches 7; Indels 0; Gaps 0;

Qy            2 FPTIPLSRLFDNAMLRAHRLHLQAFDITYQEFEAYIPKEQKYSFLQNPTSLFSSES IPT 61  
             ||||| : | : ||| : ||||| : ||||||||| : ||||| |||||  
Db           27 FPTIPLSWLFNTAVFRAHLLHLKLAFTYPKFEAYIPKEQKYSFLRNPQTSLCFSES IPT 86

```
Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
        |||:||||| ||||| ||||| |||||  
Db      87 PSNKEETQQKSNLELLHISLLLIQSWLEPVQ 117
```

RESULT 6

I67409

chorionic somatomammotropin-3 - rhesus macaque

C;Species: Macaca mulatta (rhesus macaque)

C;Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 09-Jul-2004

C;Accession: I67409

R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

Endocrinology 133, 1744-1752, 1993

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.

A;Reference number: I53267; MUID:94008724; PMID:8404617

A;Accession: I67409

A;Status: preliminary; translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-217 <RES>

A;Cross-references: UNIPROT:Q07369; GB:L16554; NID:g293112; PIDN:AAA18841.1;  
PID:g293113

C;Superfamily: prolactin

Query Match 84.5%; Score 397; DB 2; Length 217;  
Best Local Similarity 83.3%; Pred. No. 4.9e-35;  
Matches 75; Conservative 8; Mismatches 7; Indels 0; Gaps 0;

QY            3 PTIPLSRLFDNAMLRAHRLHLQLAFDITYQEFEETAYIPKEQKYSFLQNPQTSLFSFESIPTP 62  
|::||| | | | | | | | | | | | | | | | | | : ||||| ::| : ||| | | | | | |  
Db           28 PSVPLSRLFDNIMMQAHLRLHLQLAFDITYQEFEKTYIPKEKKHSMLGNPQASFCFSESIPTP 87

Qy           63 SNREETQQKS NLELLRIS LLLIQSWLEPVQ 92  
             | | | | | | | | | | | | | | | | | |  
Db           88 SNREETOOKS NLELLRIS LLLIQSWLEPVQ 117

## RESULT 7

I67408

chorionic somatomammotropin-2 - rhesus macaque (fragment)

C;Species: Macaca mulatta (rhesus macaque)

C;Date: 31-May-1996 #sequence revision 31-May-1996 #text change 09-Jul-2004

C;Accession: I67408



## RESULT 9

## LCHUC

choriomammotropin A precursor [validated] - human

N;Alternate names: chorionic somatomammotropin 1; placental lactogen

C;Species: Homo sapiens (man)

C;Date: 23-Oct-1981 #sequence\_revision 23-Oct-1981 #text\_change 09-Jul-2004

C;Accession: C32435; A94422; I52342; A93833; A93192; A90054; A94427; A61283; I55229; I59658; A01512

R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.

Genomics 4, 479-497, 1989

A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

A;Reference number: A32435; MUID:89307277; PMID:2744760

A;Accession: C32435

A;Molecule type: DNA

A;Residues: 1-217 <CHE>

A;Cross-references: UNIPROT:P01243; GB:J03071; NID:g183148; PIDN:AAA52551.1; PID:g183151

R;Goodman, H.M.; DeNoto, F.; Fiddes, J.C.; Hallewell, R.A.; Page, G.S.; Smith, S.; Tischer, E.

in Mobilization and Reassembly of Genetic Information, Scott, W.A., Werner, R., Joseph, D.R., and Schultz, J., eds., pp.155-179, Academic Press, New York, 1980

A;Reference number: A94422

A;Accession: A94422

A;Molecule type: mRNA

A;Residues: 1-217 <GOO>

R;Tanaka, M.; Masuda, N.; Watahiki, M.; Yamakawa, M.; Shimizu, K.; Nagai, J.; Nakashima, K.

Biochem. Int. 16, 287-292, 1988

A;Title: cDNA cloning of human chorionic somatomammotropin-1 mRNA whose transcription was initiated at the 5' region of the TATA box.

A;Reference number: I52342; MUID:88209096; PMID:2835050

A;Accession: I52342

A;Status: translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-3 <TAN>

A;Cross-references: GB:M35419; NID:g506822

R;Sherwood, L.M.; Burstein, Y.; Schechter, I.

Proc. Natl. Acad. Sci. U.S.A. 76, 3819-3823, 1979

A;Title: Primary structure of the NH-2-terminal extra piece of the precursor to human placental lactogen.

A;Reference number: A93833; MUID:80034970; PMID:291043

A;Accession: A93833

A;Molecule type: protein

A;Residues: 1,3-26 <SHE>

A;Experimental source: placenta

R;Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M.  
Nature 270, 494-499, 1977

A;Title: Construction and analysis of recombinant DNA for human chorionic somatomammotropin.

A;Reference number: A93192; MUID:78071761; PMID:593368

A;Accession: A93192

A;Molecule type: DNA



A;Residues: 50-217 <SHI>  
 A;Experimental source: placenta  
 R;Li, C.H.; Dixon, J.S.; Chung, D.  
 Arch. Biochem. Biophys. 155, 95-110, 1973  
 A;Title: Amino acid sequence of human chorionic somatomammotropin.  
 A;Reference number: A90054; MUID:73201971; PMID:4712450  
 A;Accession: A90054  
 A;Molecule type: protein  
 A;Residues: 27-217 <LIC>  
 A;Experimental source: placenta  
 R;Niall, H.D.  
 in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin,  
 Griffiths, K., ed., pp.13-20, Alpha Omega Alpha Press, Cardiff, Wales, 1972  
 A;Title: The chemistry of the human lactogenic hormones.  
 A;Reference number: A94427  
 A;Accession: A94427  
 A;Molecule type: protein  
 A;Residues: 27-217 <NIA>  
 A;Experimental source: placenta  
 R;Nic A Bhaird, N.; Tipton, K.F.  
 Biochem. Soc. Trans. 19, 20S, 1991  
 A;Title: Catechol-O-methyltransferase from human placenta: purification and some  
 properties.  
 A;Reference number: A61283; MUID:91244006; PMID:2037148  
 A;Accession: A61283  
 A;Molecule type: protein  
 A;Residues: 27-46 <NIC>  
 A;Note: choriomammotropin apparently copurified with placental catechol-O-  
 methyltransferase  
 R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.  
 Nature New Biol. 233, 59-61, 1971  
 A;Title: Amino-acid sequence of human placental lactogen.  
 A;Reference number: A93401; MUID:72016313; PMID:5286363  
 A;Contents: annotation  
 R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.  
 Nature New Biol. 235, 64, 1972  
 A;Reference number: A93405  
 A;Contents: annotation  
 R;Schneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M.  
 J. Biol. Chem. 254, 3782-3787, 1979  
 A;Title: Identification of the interchain disulfide bonds of dimeric human  
 placental lactogen.  
 A;Reference number: A92251; MUID:79173081; PMID:438159  
 A;Contents: annotation; dimeric disulfide bonds  
 R;Selby, M.J.; Barta, A.; Baxter, J.D.; Bell, G.I.; Eberhardt, N.L.  
 J. Biol. Chem. 259, 13131-13138, 1984  
 A;Title: Analysis of a major human chorionic somatomammotropin gene. Evidence  
 for two functional promoter elements.  
 A;Reference number: I55229; MUID:85030426; PMID:6208192  
 A;Accession: I55229  
 A;Status: translated from GB/EMBL/DDBJ  
 A;Molecule type: DNA  
 A;Residues: 1-217 <RES>  
 A;Cross-references: GB:K02401; NID:g181120; PIDN:AAA52115.1; PID:g181121  
 R;Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.  
 Trans. Assoc. Am. Physicians 90, 109-116, 1977  
 A;Title: Nucleotide sequence of a human gene coding for a polypeptide hormone.

A;Reference number: I59658; MUID:78160787; PMID:611657  
 A;Accession: I59658  
 A;Status: translated from GB/EMBL/DDBJ  
 A;Molecule type: mRNA  
 A;Residues: 160-217 <RE2>  
 A;Cross-references: GB:M25118; NID:gl81124; PIDN:AAA35721.1; PID:gl81125  
 C;Genetics:  
 A;Gene: GDB:CSH1  
 A;Cross-references: GDB:119084; OMIM:150200  
 A;Map position: 17q22-17q24  
 A;Introns: 4/1; 57/3; 97/3; 152/3  
 C;Superfamily: prolactin  
 C;Keywords: hormone; placenta  
 F;1-26/Domain: signal sequence #status experimental <SIG>  
 F;27-217/Product: choriomammotropin A #status experimental <MAT>  
 F;79-191/Disulfide bonds: #status experimental  
 F;208-215/Disulfide bonds: (in monomeric form) #status experimental  
 F;208/Disulfide bonds: interchain (to 215 in dimeric form) #status experimental  
 F;215/Disulfide bonds: interchain (to 208 in dimeric form) #status experimental

Query Match 81.1%; Score 381; DB 1; Length 217;  
 Best Local Similarity 82.0%; Pred. No. 2.5e-33;  
 Matches 73; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

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Qy      4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
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Db      29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEEYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88

Qy      64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
      | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      89 NMEETQQKSNLELLRISLLLIQSWLEPVR 117
  
```

# RESULT 10

E32435  
 choriomammotropin B precursor - human  
 N;Alternate names: chorionic somatomammotropin 2  
 C;Species: Homo sapiens (man)  
 C;Date: 29-Dec-1989 #sequence\_revision 29-Dec-1989 #text\_change 09-Jul-2004  
 C;Accession: E32435  
 R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.  
 Genomics 4, 479-497, 1989  
 A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
 A;Reference number: A32435; MUID:89307277; PMID:2744760  
 A;Accession: E32435  
 A;Status: preliminary  
 A;Molecule type: DNA  
 A;Residues: 1-217 <CHE>  
 A;Cross-references: UNIPROT:Q14407; GB:J03071; NID:gl83148; PIDN:AAA52553.1; PID:gl83153  
 C;Genetics:  
 A;Gene: GDB:CSH2  
 A;Cross-references: GDB:119813; OMIM:118820  
 A;Map position: 17q22-17q24  
 C;Superfamily: prolactin

Query Match 81.1%; Score 381; DB 2; Length 217;  
Best Local Similarity 82.0%; Pred. No. 2.5e-33;  
Matches 73; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

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Qy      4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
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Db      29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEEYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88

Qy      64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
          | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      89 NMEETQQKSNLELLRISLLLIQSWLEPVR 117
```

#### RESULT 11

A26449

choriomammotropin precursor (allele hCS-3) - human

C;Species: Homo sapiens (man)

C;Date: 30-Jun-1988 #sequence\_revision 30-Jun-1988 #text\_change 09-Jul-2004

C;Accession: A26449

R;Hirt, H.; Kimelman, J.; Birnbaum, M.J.; Chen, E.Y.; Seeburg, P.H.; Eberhardt, N.L.; Barta, A.

DNA 6, 59-70, 1987

A;Title: The human growth hormone gene locus: structure, evolution, and allelic variations.

A;Reference number: A26449; MUID:87161235; PMID:3030680

A;Accession: A26449

A;Molecule type: DNA

A;Residues: 1-215 <HIR>

A;Cross-references: UNIPROT:P01243

C;Superfamily: prolactin

F;1-26/Domain: signal sequence #status predicted <SIG>

F;27-215/Product: choriomammotropin, hCS-3 allele #status predicted <MAT>

Query Match 76.5%; Score 359.5; DB 2; Length 215;  
Best Local Similarity 80.5%; Pred. No. 5e-31;  
Matches 70; Conservative 8; Mismatches 8; Indels 1; Gaps 1;

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Qy      4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
          |:|||||:|:|:| | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEEYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88

Qy      64 NREETQQKSNLELLRISLLLIQSWLEP 90
          | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      89 NMEETQQKSNLELLRL-LLLIQSWLEP 114
```

#### RESULT 12

B49159

somatotropin - golden hamster

N;Alternate names: growth hormone

C;Species: Mesocricetus auratus (golden hamster)

C;Date: 19-Dec-1993 #sequence\_revision 18-Nov-1994 #text\_change 09-Jul-2004

C;Accession: B49159

R;Southard, J.N.; Sanchez-Jimenez, F.; Campbell, G.T.; Talamantes, F.

Endocrinology 129, 2965-2971, 1991

A;Title: Sequence and expression of hamster prolactin and growth hormone messenger RNAs.  
A;Reference number: A49159; MUID:92063850; PMID:1954881  
A;Accession: B49159  
A;Status: preliminary  
A;Molecule type: mRNA  
A;Residues: 1-216 <SOU>  
A;Cross-references: UNIPROT:P37886; GB:S66299; NID:g239355; PIDN:AAB20368.1; PID:g239356  
A;Note: sequence extracted from NCBI backbone (NCBIN:66299, NCBIP:66300)  
C;Superfamily: prolactin

Query Match 66.1%; Score 310.5; DB 2; Length 216;  
Best Local Similarity 67.0%; Pred. No. 8.7e-26;  
Matches 61; Conservative 13; Mismatches 16; Indels 1; Gaps 1;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
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Db      27  FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRY- IQNAQTAFCFSETIPA 85

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
      |: :|| ||:|:| ||||| ||||| ||||| |||
Db      86  PTGKEEAQQRSDMELLRFSLLLIQSWLGPVQ 116
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#### RESULT 13

PN0140

somatotropin - sei whale

N;Alternate names: growth hormone

C;Species: Balaenoptera borealis (sei whale)

C;Date: 07-May-1993 #sequence\_revision 07-May-1993 #text\_change 09-Jul-2004

C;Accession: PN0140

R;Yudaev, N.A.; Pankov, Y.A.; Bulatov, A.A.; Osipova, T.A.

Biokhimiia 47, 1059-1069, 1982

A;Title: Amino acid sequence of seiwhale somatotropin.

A;Reference number: PN0140; MUID:83000569; PMID:7115813

A;Accession: PN0140

A;Molecule type: protein

A;Residues: 1-190 <YUD>

A;Cross-references: UNIPROT:P33092

A;Note: article in Russian with English abstract

C;Superfamily: prolactin

C;Keywords: growth factor; hormone

F;52-163,180-188/Disulfide bonds: #status predicted

Query Match 65.4%; Score 307.5; DB 2; Length 190;  
Best Local Similarity 67.0%; Pred. No. 1.6e-25;  
Matches 61; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
      || :||| || ||:||| ||||| |||:||| ||||| |:| |||| |:| ||| |||
Db      1  FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRY-FLQNAQSTGCFSEVIPT 59

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
      |:|:| ||:|:| ||||| ||||| ||||| |||
Db      60  PANKDEAQQRSDVELLRFSLLLIQSWLGPVQ 90
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# RESULT 14

STMS

somatotropin precursor - mouse

N;Alternate names: growth hormone

C;Species: Mus musculus (house mouse)

C;Date: 30-Sep-1987 #sequence\_revision 30-Sep-1987 #text\_change 09-Jul-2004

C;Accession: B23911

R;Linzer, D.I.H.; Talamantes, F.

J. Biol. Chem. 260, 9574-9579, 1985

A;Title: Nucleotide sequence of mouse prolactin and growth hormone mRNAs and expression of these mRNAs during pregnancy.

A;Reference number: A92548; MUID:85261358; PMID:2991252

A;Accession: B23911

A;Molecule type: mRNA

A;Residues: 1-216 <LIN>

A;Cross-references: UNIPROT:P06880; GB:X02891; GB:K03232; NID:g51067;

PIDN:CAA26650.1; PID:g51068

C;Superfamily: prolactin

C;Keywords: anterior pituitary; growth factor; hormone

F;1-26/Domain: signal sequence #status predicted <SIG>

F;27-216/Product: somatotropin #status predicted <STN>

F;78-189,206-214/Disulfide bonds: #status predicted

Query Match 64.8%; Score 304.5; DB 1; Length 216;

Best Local Similarity 64.8%; Pred. No. 3.8e-25;

Matches 59; Conservative 14; Mismatches 17; Indels 1; Gaps 1;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61  
 || :||| || ||:||| ||||| |||:||| ||||: |:|| :|| | : |||:||  
 Db 27 FPAMPLSSLSFNAVLRAQHQLAADTYKEFERAYIPEGQRYIS-IQNAQAACFSETIPA 85  
 Qy 62 PSNREETQQKSNLELLRLISLLLIQSWLEPVQ 92  
 |: :|| ||:::|||| ||||| |||| ||||  
 Db 86 PTGKEEAQQRTDMELLRFSLLLLIQSWLGPVQ 116

# RESULT 15

STHO

somatotropin - horse

N;Alternate names: growth hormone

C;Species: Equus caballus (domestic horse)

C;Date: 13-Jul-1981 #sequence\_revision 13-Jul-1981 #text\_change 23-Aug-1996

C;Accession: A91772; A91395; A91383; A90240; A01514

R;Zakin, M.M.; Poskus, E.; Langton, A.A.; Ferrara, P.; Santome, J.A.; Dellacha, J.M.; Paladini, A.C.

Int. J. Pept. Protein Res. 8, 435-444, 1976

A;Title: Primary structure of equine growth hormone.

A;Reference number: A91772; MUID:77005410; PMID:965151

A;Accession: A91772

A;Molecule type: protein

A;Residues: 1-190 <ZAK>

R;Zakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.

FEBS Lett. 34, 353-355, 1973

A;Title: The amino acid sequence of equine growth hormone.

A;Reference number: A91395; MUID:74020362; PMID:4747849

A;Accession: A91395

A;Molecule type: protein  
 A;Residues: 1-190 <ZA2>  
 R;Zakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.  
 FEBS Lett. 25, 77-82, 1972  
 A;Title: Amino acid sequences around the cystine residues in equine growth hormone.  
 A;Reference number: A91383  
 A;Accession: A91383  
 A;Molecule type: protein  
 A;Residues: 42-69;157-190 <ZA3>  
 R;Oliver, L.; Hartree, A.S.  
 Biochem. J. 109, 19-24, 1968  
 A;Title: Amino acid sequences around the cystine residues in horse growth hormone.  
 A;Reference number: A90240; MUID:68368390; PMID:4876100  
 A;Accession: A90240  
 A;Molecule type: protein  
 A;Residues: 176-190 <OLI>  
 C;Superfamily: prolactin  
 C;Keywords: hormone; pituitary  
 F;52-163,180-188/Disulfide bonds: #status experimental

Query Match 64.4%; Score 302.5; DB 1; Length 190;  
 Best Local Similarity 64.8%; Pred. No. 5.3e-25;  
 Matches 59; Conservative 14; Mismatches 17; Indels 1; Gaps 1;

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		:         :              :         :  :   :     :    :	
Db	1	FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYIS-IQNAQA AFCFSETIPA	59
Qy	62	PSNREETQQKSNLELLRISLLLIQSWLEPVQ	92
		: ::    : ::	
Db	60	PTGKDEAQQRSDMELLRFSLLLIQSWLGPVQ	90

Search completed: February 11, 2005, 18:24:31  
 Job time : 17.4834 secs

OM protein - protein search, using sw model

Run on: February 11, 2005, 18:23:02 ; Search time 66.8782 Seconds  
(without alignments)  
449.487 Million cell updates/sec

Title: US-10-054-873-2  
Perfect score: 470  
Sequence: 1 MFPTIPLSRLEFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1376875 seqs, 326749119 residues

Total number of hits satisfying chosen parameters: 1376875

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Published Applications\_AA:\*  
1: /cgn2\_6/ptodata/1/pubpaa/US07\_PUBCOMB.pep:\*  
2: /cgn2\_6/ptodata/1/pubpaa/PCT\_NEW\_PUB.pep:\*  
3: /cgn2\_6/ptodata/1/pubpaa/US06\_NEW\_PUB.pep:\*  
4: /cgn2\_6/ptodata/1/pubpaa/US06\_PUBCOMB.pep:\*  
5: /cgn2\_6/ptodata/1/pubpaa/US07\_NEW\_PUB.pep:\*  
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	470	100.0	92	13	US-10-054-873-2	Sequence 2, Appli
2	470	100.0	134	10	US-09-819-094-24	Sequence 24, Appl
3	470	100.0	134	15	US-10-714-067-24	Sequence 24, Appl
4	470	100.0	150	13	US-10-054-873-7	Sequence 7, Appli
5	465	98.9	188	15	US-10-621-693-18	Sequence 18, Appl
6	465	98.9	192	10	US-09-819-094-23	Sequence 23, Appl
7	465	98.9	192	15	US-10-621-693-8	Sequence 8, Appli
8	465	98.9	192	15	US-10-621-693-78	Sequence 78, Appl
9	465	98.9	192	15	US-10-621-693-86	Sequence 86, Appl
10	465	98.9	192	15	US-10-714-067-23	Sequence 23, Appl
11	465	98.9	193	15	US-10-621-693-42	Sequence 42, Appl
12	465	98.9	206	15	US-10-621-693-72	Sequence 72, Appl
13	465	98.9	391	15	US-10-621-693-51	Sequence 51, Appl
14	465	98.9	574	15	US-10-621-693-32	Sequence 32, Appl
15	465	98.9	576	15	US-10-621-693-39	Sequence 39, Appl
16	465	98.9	589	15	US-10-621-693-53	Sequence 53, Appl
17	465	98.9	786	15	US-10-621-693-55	Sequence 55, Appl
18	465	98.9	810	15	US-10-621-693-76	Sequence 76, Appl
19	460	97.9	178	17	US-10-741-600-946	Sequence 946, App
20	460	97.9	191	10	US-09-984-010-23	Sequence 23, Appl
21	460	97.9	191	14	US-10-153-207-1	Sequence 1, Appli
22	460	97.9	191	14	US-10-400-377-1	Sequence 1, Appli
23	460	97.9	191	14	US-10-400-708-1	Sequence 1, Appli
24	460	97.9	191	14	US-10-298-148-1	Sequence 1, Appli
25	460	97.9	191	15	US-10-646-798-2	Sequence 2, Appli
26	460	97.9	191	15	US-10-621-693-2	Sequence 2, Appli
27	460	97.9	191	15	US-10-621-693-21	Sequence 21, Appl
28	460	97.9	191	15	US-10-621-693-80	Sequence 80, Appl
29	460	97.9	191	15	US-10-621-693-82	Sequence 82, Appl
30	460	97.9	191	15	US-10-621-693-84	Sequence 84, Appl
31	460	97.9	191	16	US-10-718-340-1	Sequence 1, Appli
32	460	97.9	191	16	US-10-658-834A-866	Sequence 866, App
33	460	97.9	191	16	US-10-658-834A-867	Sequence 867, App
34	460	97.9	191	16	US-10-658-834A-868	Sequence 868, App
35	460	97.9	191	16	US-10-658-834A-869	Sequence 869, App
36	460	97.9	191	16	US-10-658-834A-870	Sequence 870, App
37	460	97.9	191	16	US-10-658-834A-871	Sequence 871, App
38	460	97.9	191	16	US-10-658-834A-872	Sequence 872, App
39	460	97.9	191	16	US-10-658-834A-873	Sequence 873, App
40	460	97.9	191	16	US-10-658-834A-874	Sequence 874, App
41	460	97.9	191	16	US-10-658-834A-875	Sequence 875, App
42	460	97.9	191	16	US-10-658-834A-876	Sequence 876, App
43	460	97.9	191	16	US-10-658-834A-877	Sequence 877, App
44	460	97.9	191	16	US-10-658-834A-878	Sequence 878, App
45	460	97.9	191	16	US-10-658-834A-879	Sequence 879, App

#### ALIGNMENTS

##### RESULT 1

US-10-054-873-2

; Sequence 2, Application US/10054873

; Publication No. US20020164712A1



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; GENERAL INFORMATION:
; APPLICANT: Gan, Zhong Ru
; TITLE OF INVENTION: Chimeric Protein Containing an
;                      Intramolecular Chaperone-Like Sequence
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Townsend and Townsend and Crew LLP
; STREET: Two Embarcadero Center, Eighth Floor
; CITY: San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94111-3834
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/10/054,873
; FILING DATE: 22-Jan-2002
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: WO PCT/CN98/00052
; FILING DATE: 31-MAR-1998
; APPLICATION NUMBER: US 09/423,100
; FILING DATE: 11-DEC-2000
; ATTORNEY/AGENT INFORMATION:
; NAME: Mycroft, Frank J
; REGISTRATION NUMBER: 46,946
; REFERENCE/DOCKET NUMBER: 020167-000130US
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 92 amino acids
; TYPE: amino acid
; STRANDEDNESS: <Unknown>
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; SEQUENCE DESCRIPTION: SEQ ID NO: 2:
US-10-054-873-2

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Query Match          100.0%;  Score 470;  DB 13;  Length 92;
Best Local Similarity 100.0%;  Pred. No. 1e-44;
Matches 92;  Conservative 0;  Mismatches 0;  Indels 0;  Gaps 0;

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        ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
        ||||||||||||||||||||||||||||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

```

```

RESULT 2
US-09-819-094-24
; Sequence 24, Application US/09819094
; Publication No. US20030186382A1

```

```
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: No. US20030186382A1el Antiangiogenic Peptide Agents and
Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/09/819,094
; CURRENT FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 24
; LENGTH: 134
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-819-094-24
```

```
Query Match          100.0%;  Score 470;  DB 10;  Length 134;
Best Local Similarity 100.0%;  Pred. No. 1.6e-44;
Matches    92;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
```

```
Qy      1 MFPTIPLSRFLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
|
Db      1 MFPTIPLSRFLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
|
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

# RESULT 3

US-10-714-067-24

```
; Sequence 24, Application US/10714067
; Publication No. US20040077054A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: Novel Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/10/714,067
; CURRENT FILING DATE: 2003-11-14
; PRIOR APPLICATION NUMBER: US/09/819,094
; PRIOR FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
```



```

;          TYPE: amino acid
;          STRANDEDNESS: <Unknown>
;          TOPOLOGY: linear
;          MOLECULE TYPE: protein
;          SEQUENCE DESCRIPTION: SEQ ID NO: 7:
US-10-054-873-7

```

Query Match 100.0%; Score 470; DB 13; Length 150;  
Best Local Similarity 100.0%; Pred. No. 1.9e-44;  
Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        |||

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
        |||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

```

## RESULT 5

US-10-621-693-18

; Sequence 18, Application US/10621693

```
; Publication No. US20040059093A1
```

; GENERAL INFORMATION:

; APPLICANT: Gentide Biopharmaceuticals, Inc.

; APPLICANT: Bussell, Stuart

SEQUENCES AS

; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS

FILE REFERENCE: GNT-00101.P.1-US

; CURRENT APPLICATION NUMBER: US/10/621,693

; CURRENT FILING DATE: 2003-07-16

; PRIOR APPLICATION NUMBER: US 60/396,466

; PRIOR FILING DATE: 2002-07-16

; NUMBER OF SEQ ID NOS: 86

```
; SOFTWARE: PatentIn version 3.0
```

; SEQ ID NO 18

; LENGTH: 188

; TYPE: PRT

; ORGANISM: Artificial

; FEATURE:

; OTHER INFORMATION: synthetic sequence

US-10-621-693-18

Query Match 98.9%; Score 465; DB 15; Length 188;  
Best Local Similarity 98.9%; Pred. No. 8.9e-44;  
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEAYIPKEQKYSFLQNPQTSLSFSESIP 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          ||||||||||||||||||||||||||||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

```

RESULT 6

US-09-819-094-23

```
; Sequence 23, Application US/09819094
; Publication No. US20030186382A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: No. US20030186382A1el Antiangiogenic Peptide Agents and
Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/09/819,094
; CURRENT FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 23
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-819-094-23
```

```
Query Match          98.9%; Score 465; DB 10; Length 192;
Best Local Similarity 98.9%; Pred. No. 9.2e-44;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
```

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy      61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92
          ||||||||||||||||||||||||||||
Db      61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92
```

RESULT 7

US-10-621-693-8

```
; Sequence 8, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
```

```

Query Match          98.9%;  Score 465;  DB 15;  Length 192;
Best Local Similarity 98.9%;  Pred. No. 9.2e-44;
Matches    91;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
             |||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
             |||

Qy          61 TPSNREETQQKSNELELLRISLLLIQSWLEPVQ 92
             |||
Db          61 TPSNREETQQKSNELELLRISLLLIQSWLEPVQ 92
             |||

```

US-10-621-693-78

```

; Sequence 78, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 78
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
US-10-621-693-78

```

```

Query Match          98.9%;  Score 465;  DB 15;  Length 192;
Best Local Similarity 98.9%;  Pred. No. 9.2e-44;
Matches 91;  Conservative 0;  Mismatches 1;  Indels 0;  Gaps 0;

Qy      1  MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1  MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

```

Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 |||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

RESULT 9

US-10-621-693-86  
 ; Sequence 86, Application US/10621693  
 ; Publication No. US20040059093A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Gentide Biopharmaceuticals, Inc.  
 ; APPLICANT: Bussell, Stuart  
 ; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN SEQUENCES AS  
 ; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS  
 ; FILE REFERENCE: GNT-00101.P.1-US  
 ; CURRENT APPLICATION NUMBER: US/10/621,693  
 ; CURRENT FILING DATE: 2003-07-16  
 ; PRIOR APPLICATION NUMBER: US 60/396,466  
 ; PRIOR FILING DATE: 2002-07-16  
 ; NUMBER OF SEQ ID NOS: 86  
 ; SOFTWARE: PatentIn version 3.0  
 ; SEQ ID NO 86  
 ; LENGTH: 192  
 ; TYPE: PRT  
 ; ORGANISM: Artificial  
 ; FEATURE:  
 ; OTHER INFORMATION: synthetic sequence  
 ; FEATURE:  
 ; NAME/KEY: MISC\_FEATURE  
 ; LOCATION: (2)..(192)  
 ; OTHER INFORMATION: sequence is repeated N+2 times, where N is a positive whole numbe  
 ; FEATURE:  
 ; NAME/KEY: mat\_peptide  
 ; LOCATION: (1)..()  
 US-10-621-693-86

Query Match 98.9%; Score 465; DB 15; Length 192;  
 Best Local Similarity 98.9%; Pred. No. 9.2e-44;  
 Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60  
 |||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60  
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 |||||  
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

RESULT 10

US-10-714-067-23  
 ; Sequence 23, Application US/10714067  
 ; Publication No. US20040077054A1  
 ; GENERAL INFORMATION:

```
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: Novel Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/10/714,067
; CURRENT FILING DATE: 2003-11-14
; PRIOR APPLICATION NUMBER: US/09/819,094
; PRIOR FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 23
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-714-067-23
```

```
Query Match          98.9%; Score 465; DB 15; Length 192;
Best Local Similarity 98.9%; Pred. No. 9.2e-44;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
```

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
          |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          |||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

# RESULT 11

US-10-621-693-42

```
; Sequence 42, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 42
; LENGTH: 193
; TYPE: PRT
; ORGANISM: Artificial
```



```

;   FEATURE:
;   OTHER INFORMATION: synthetic sequence
US-10-621-693-42

```

Query Match 98.9%; Score 465; DB 15; Length 193;  
Best Local Similarity 98.9%; Pred. No. 9.2e-44;  
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
          |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60
          |||

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          |||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          |||

```

RESULT 12

US-10-621-693-72

; Sequence 72, Application US/10621693

: Publication No. US20040059093A1

; GENERAL INFORMATION:

; APPLICANT: Gentide Biopharmaceuticals, Inc.

; APPLICANT: Bussell, Stuart

; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN SEQUENCES AS

; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS

; FILE REFERENCE: GNT-00101.P.1-US

: CURRENT APPLICATION NUMBER: US/10/621,693

; CURRENT FILING DATE: 2003-07-16

; PRIOR APPLICATION NUMBER: US 60/396,466

; PRIOR FILING DATE: 2002-07-16

; NUMBER OF SEQ ID NOS: 86

```
; SOFTWARE: PatentIn version 3.0
```

; SEO ID NO 72

; LENGTH: 206

; TYPE: PRT

; ORGANISM: Artificial

; FEATURE:

; OTHER INFORMATION: synthetic sequence

US-10-621-693-72

Query Match 98.9%; Score 465; DB 15; Length 206;  
Best Local Similarity 98.9%; Pred. No. 1e-43;  
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

QY      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
      |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60
      |||

QY      61 TPSNREETQOKSNLELLRISLLLIQSWLEPVQ 92
      |||
Db      61 TPSNREETQOKSNLELLRISLLLIQSWLEPVQ 92

```

RESULT 13

US-10-621-693-51

```
; Sequence 51, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 51
; LENGTH: 391
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: mat_peptide
; LOCATION: (1)..()
US-10-621-693-51
```

```
Query Match          98.9%; Score 465; DB 15; Length 391;
Best Local Similarity 98.9%; Pred. No. 2.2e-43;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
```

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy      61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92
        |||
Db      61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92
```

#### RESULT 14

US-10-621-693-32

```
; Sequence 32, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 32
```

```
; LENGTH: 574
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: MISC_FEATURE
; LOCATION: (379)..(569)
; OTHER INFORMATION: sequence is repeated N-1 times, where N is a positive
whole numbe
; FEATURE:
; NAME/KEY: mat_peptide
; LOCATION: (1)..()
US-10-621-693-32
```

```
Query Match          98.9%; Score 465; DB 15; Length 574;
Best Local Similarity 98.9%; Pred. No. 3.6e-43;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
```

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
          |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          |||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

# RESULT 15

```
US-10-621-693-39
; Sequence 39, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 39
; LENGTH: 576
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: MISC_FEATURE
; LOCATION: (380)..(571)
; OTHER INFORMATION: sequence is repeated N-1 times, where N is a positive
whole numbe
; FEATURE:
```

```
; NAME/KEY: mat_peptide
; LOCATION: (1)..()
US-10-621-693-39
```

Query Match 98.9%; Score 465; DB 15; Length 576;  
Best Local Similarity 98.9%; Pred. No. 3.6e-43;  
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
        ||||||||||||||||||||||||||||
Db     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

```

Search completed: February 11, 2005, 19:03:50  
Job time : 66.8782 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: February 11, 2005, 17:42:04 ; Search time 80.2878 Seconds  
(without alignments)  
586.780 Million cell updates/sec

Title: US-10-054-873-2  
Perfect score: 470  
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : UniProt\_03:\*  
1: uniprot\_sprot:\*  
2: uniprot\_trembl:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query			DB ID	Description
		Match	Length			
1	460	97.9	217	1	SOMA_HUMAN	P01241 homo sapien
2	460	97.9	217	1	SOMA_MACMU	P33093 macaca mula
3	460	97.9	217	1	SOMA_PANTR	P58756 pan troglod
4	460	97.9	217	2	Q6IYF0	Q6iyf0 homo sapien
5	456	97.0	217	2	Q6IYF1	Q6iyf1 homo sapien
6	435	92.6	217	2	Q8WNE0	Q8wne0 ateles geof
7	433	92.1	217	1	SOMA_SAIBB	P58343 saimiri bol
8	432	91.9	217	1	SOMA_CALJA	Q9gmb3 callithrix
9	430	91.5	217	1	SOM2_PANTR	P58757 pan troglod
10	423	90.0	217	2	Q6FH54	Q6fh54 homo sapien
11	422	89.8	217	1	SOM2_HUMAN	P01242 homo sapien
12	422	89.8	245	2	O14644	O14644 homo sapien
13	417	88.7	217	2	Q6FH32	Q6fh32 homo sapien
14	399	84.9	184	2	Q866T9	Q866t9 pan troglod
15	397	84.5	217	2	Q07369	Q07369 macaca mula

16	397	84.5	217	2	Q866U1	Q866u1	pan troglod
17	396	84.3	212	2	Q07368	Q07368	macaca mula
18	396	84.3	217	1	SOM2_MACMU	Q07370	macaca mula
19	396	84.3	217	2	Q07367	Q07367	macaca mula
20	385	81.9	217	2	Q866T8	Q866t8	pan troglod
21	381	81.1	217	1	CSH_HUMAN	P01243	homo sapien
22	381	81.1	217	2	Q6PF11	Q6pf11	homo sapien
23	370	78.7	217	2	Q866U0	Q866u0	pan troglod
24	348	74.0	217	2	Q8WND9	Q8wnd9	ateles geof
25	336.5	71.6	202	2	O14643	O14643	homo sapien
26	318	67.7	217	2	Q8MI74	Q8mi74	callithrix
27	310.5	66.1	216	1	SOMA_MESAU	P37886	mesocricetu
28	307.5	65.4	190	1	SOMA_BALBO	P33092	balaenopter
29	306.5	65.2	216	2	O70615	O70615	spalax leuc
30	304.5	64.8	216	1	SOMA_MOUSE	P06880	mus musculu
31	302.5	64.4	216	1	SOMA_HORSE	P01245	equus cabal
32	302.5	64.4	216	1	SOMA_RABIT	P46407	oryctolagus
33	302.5	64.4	216	1	SOMA_RAT	P01244	rattus norv
34	302.5	64.4	217	1	SOMA_GALSE	Q9gka1	galago sene
35	302.5	64.4	217	1	SOMA_NYCPY	Q9gmb2	nycticebus
36	301.5	64.1	190	1	SOMA_LOXAF	P20392	loxodonta a
37	301.5	64.1	216	1	SOMA_BALPH	Q659q8	balaenopter
38	301.5	64.1	216	1	SOMA_CANFA	P33711	canis famil
39	301.5	64.1	216	1	SOMA_FELCA	P46404	felis silve
40	301.5	64.1	216	1	SOMA_PIG	P01248	sus scrofa
41	301.5	64.1	216	2	Q8HYE5	Q8hye5	ailuropoda
42	301.5	64.1	216	2	Q8MI73	Q8mi73	delphinus d
43	301.5	64.1	216	2	Q7YQB8	Q7yqb8	hippopotamu
44	300	63.8	184	2	Q69B30	Q69b30	ateles geof
45	299.5	63.7	216	1	SOMA_MUSVI	P19795	mustela vis

#### ALIGNMENTS

#### RESULT 1

#### SOMA\_HUMAN

ID SOMA\_HUMAN STANDARD; PRT; 217 AA.  
AC P01241; Q14405; Q16631; Q9HBZ1; Q9UMJ7; Q9UNL5;  
DT 21-JUL-1986 (Rel. 01, Created)  
DT 01-MAR-1992 (Rel. 21, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth hormone) (Growth hormone 1).  
GN Name=GH1;  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORM 1).  
RX MEDLINE=80034477; PubMed=386281;  
RA Roskam W., Rougeon F.;  
RT "Molecular cloning and nucleotide sequence of the human growth hormone structural gene."  
RL Nucleic Acids Res. 7:305-320(1979).  
RN [2]

RP SEQUENCE FROM N.A. (ISOFORM 1).  
 RX MEDLINE=79203293; PubMed=377496;  
 RA Martial J.A., Hallewell R.A., Baxter J.D., Goodman H.M.;  
 RT "Human growth hormone: complementary DNA cloning and expression in  
 RT bacteria.";  
 RL Science 205:602-607(1979).  
 RN [3]  
 RP SEQUENCE FROM N.A. (ISOFORM 1), AND POSSIBLE ALTERNATIVE SPLICING.  
 RX MEDLINE=82014939; PubMed=6269091;  
 RA Denoto F.M., Moore D.D., Goodman H.M.;  
 RT "Human growth hormone DNA sequence and mRNA structure: possible  
 RT alternative splicing.";  
 RL Nucleic Acids Res. 9:3719-3730(1981).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=83182010; PubMed=7169009;  
 RA Seeburg P.H.;  
 RT "The human growth hormone gene family: nucleotide sequences show  
 RT recent divergence and predict a new polypeptide hormone.";  
 RL DNA 1:239-249(1982).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=89307277; PubMed=2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,  
 RA Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 RT evolution.";  
 RL Genomics 4:479-497(1989).  
 RN [6]  
 RP SEQUENCE FROM N.A. (ISOFORM 3).  
 RC TISSUE=Pituitary;  
 RA Gu J., Huang Q.-H., Li N., Xu S.-H., Han Z.-G., Fu G., Chen Z.;  
 RT "A novel gene expressed in human pituitary.";  
 RL Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.  
 RN [7]  
 RP SEQUENCE FROM N.A. (ISOFORM 4).  
 RC TISSUE=Pituitary;  
 RX MEDLINE=20402571; PubMed=10931946; DOI=10.1073/pnas.160270997;  
 RA Hu R.-M., Han Z.-G., Song H.-D., Peng Y.-D., Huang Q.-H., Ren S.-X.,  
 RA Gu Y.-J., Huang C.-H., Li Y.-B., Jiang C.-L., Fu G., Zhang Q.-H.,  
 RA Gu B.-W., Dai M., Mao Y.-F., Gao G.-F., Rong R., Ye M., Zhou J.,  
 RA Xu S.-H., Gu J., Shi J.-X., Jin W.-R., Zhang C.-K., Wu T.-M.,  
 RA Huang G.-Y., Chen Z., Chen M.-D., Chen J.-L.;  
 RT "Gene expression profiling in the human hypothalamus-pituitary-adrenal  
 RT axis and full-length cDNA cloning.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 97:9543-9548(2000).  
 RN [8]  
 RP SEQUENCE OF 1-26 FROM N.A.  
 RX MEDLINE=86137393; PubMed=3912261; DOI=10.1016/0378-1119(85)90319-1;  
 RA Gray G.L., Baldrige J.S., McKeown K.S., Heyneker H.L., Chang C.N.;  
 RT "Periplasmic production of correctly processed human growth hormone in  
 RT Escherichia coli: natural and bacterial signal sequences are  
 RT interchangeable.";  
 RL Gene 39:247-254(1985).  
 RN [9]  
 RP SEQUENCE OF 27-217.  
 RX MEDLINE=69289202; PubMed=5810834;

RA Li C.H., Dixon J.S., Liu W.-K.;  
 RT "Human pituitary growth hormone. XIX. The primary structure of the  
 RT hormone.";  
 RL Arch. Biochem. Biophys. 133:70-91(1969).  
 RN [10]  
 RP SEQUENCE OF 27-217, AND REVISIONS.  
 RX MEDLINE=72143935; PubMed=5144027;  
 RA Li C.H., Dixon J.S.;  
 RT "Human pituitary growth hormone. 32. The primary structure of the  
 RT hormone: revision.";  
 RL Arch. Biochem. Biophys. 146:233-236(1971).  
 RN [11]  
 RP REVISION.  
 RX MEDLINE=73092028; PubMed=4675454;  
 RA Bewley T.A., Dixon J.S., Li C.H.;  
 RT "Sequence comparison of human pituitary growth hormone, human  
 RT chorionic somatomammotropin, and ovine pituitary growth and lactogenic  
 RT hormones.";  
 RL Int. J. Pept. Protein Res. 4:281-287(1972).  
 RN [12]  
 RP SEQUENCE OF 27-61 AND 102-124.  
 RX MEDLINE=71139765; PubMed=5279046;  
 RA Niall H.D.;  
 RT "Revised primary structure for human growth hormone.";  
 RL Nature New Biol. 230:90-91(1971).  
 RN [13]  
 RP REVISIONS TO 119-120 AND 157-159.  
 RX MEDLINE=71153968; PubMed=5279528;  
 RA Niall H.D., Hogan M.L., Sauer R., Rosenblum I.Y., Greenwood F.C.;  
 RT "Sequences of pituitary and placental lactogenic and growth hormones:  
 RT evolution from a primordial peptide by gene reduplication.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 68:866-869(1971).  
 RN [14]  
 RP REVISION.  
 RA Niall H.D.;  
 RT "The chemistry of the human lactogenic hormones.";  
 RL (In) Griffiths K. (eds.);  
 RL Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin,  
 RL pp.13-20, Alpha Omega Alpha Press, Cardiff (1972).  
 RN [15]  
 RP SEQUENCE OF 27-79 (ISOFORM 2).  
 RX MEDLINE=81117361; PubMed=7462247;  
 RA Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J.,  
 RA Turner C., Cary P.D., Crane-Robinson C.;  
 RT "The 20,000 molecular weight variant of human growth hormone.  
 RT Preparation and some physical and chemical properties.";  
 RL J. Biol. Chem. 256:2395-2401(1981).  
 RN [16]  
 RP SEQUENCE OF 46-80 (ISOFORM 2).  
 RX MEDLINE=80130196; PubMed=7356479;  
 RA Lewis U.J., Bonewald L.F., Lewis L.J.;  
 RT "The 20,000-dalton variant of human growth hormone: location of the  
 RT amino acid deletions.";  
 RL Biochem. Biophys. Res. Commun. 92:511-516(1980).  
 RN [17]  
 RP DEAMIDATION OF GLN-163 AND ASN-178.  
 RX MEDLINE=82052997; PubMed=7028740;



RA Lewis U.J., Singh R.N., Bonewald L.F., Seavey B.K.;  
 RT "Altered proteolytic cleavage of human growth hormone as a result of  
 RT deamidation.";  
 RL J. Biol. Chem. 256:11645-11650(1981).  
 RN [18]  
 RP PHOSPHORYLATION SITES SER-132 AND SER-176.  
 RC TISSUE=Pituitary;  
 RX PubMed=14997482; DOI=10.1002/pmic.200300584;  
 RA Giorgianni F., Beranova-Giorgianni S., Desiderio D.M.;  
 RT "Identification and characterization of phosphorylated proteins in the  
 RT human pituitary.";  
 RL Proteomics 4:587-598(2004).  
 RN [19]  
 RP REVIEW.  
 RX MEDLINE=99321812; PubMed=10393484; DOI=10.1159/000053128;  
 RA Baumann G.;  
 RT "Growth hormone heterogeneity in human pituitary and plasma.";  
 RL Horm. Res. 51 Suppl. 1:2-6(1999).  
 RN [20]  
 RP 3D-STRUCTURE MODELING.  
 RX MEDLINE=88190073; PubMed=3447173;  
 RA Cohen F.E., Kuntz I.D.;  
 RT "Prediction of the three-dimensional structure of human growth  
 RT hormone.";  
 RL Proteins 2:162-166(1987).  
 RN [21]  
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
 RX MEDLINE=92196577; PubMed=1549776;  
 RA de Vos A.M., Ultsch M., Kossiakoff A.A.;  
 RT "Human growth hormone and extracellular domain of its receptor:  
 RT crystal structure of the complex.";  
 RL Science 255:306-312(1992).  
 RN [22]  
 RP X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).  
 RX MEDLINE=95075462; PubMed=7984244; DOI=10.1038/372478a0;  
 RA Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.;  
 RT "The X-ray structure of a growth hormone-prolactin receptor complex.";  
 RL Nature 372:478-481(1994).  
 RN [23]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
 RA Chantalat L., Chirgadze N.Y., Jones N., Korber F., Navaza J.,  
 RA Pavlovsk A.G., Wlodawer A.;  
 RT "The crystal-structure of wild-type growth-hormone at 2.5-A  
 RT resolution.";  
 RL Protein Pept. Lett. 2:333-340(1995).  
 RN [24]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
 RX MEDLINE=97113023; PubMed=8943276; DOI=10.1074/jbc.271.50.32197;  
 RA Sundstroem M., Lundqvist T., Roedin J., Giebel L.B., Milligan D.,  
 RA Norstedt G.;  
 RT "Crystal structure of an antagonist mutant of human growth hormone,  
 RT G120R, in complex with its receptor at 2.9-A resolution.";  
 RL J. Biol. Chem. 271:32197-32203(1996).  
 RN [25]  
 RP VARIANT KOWARSKI SYNDROME CYS-103.  
 RX MEDLINE=96150232; PubMed=8552145; DOI=10.1056/NEJM199602153340704;  
 RA Takahashi Y., Kaji H., Okimura Y., Goji K., Abe H., Chihara K.;

RT "Short stature caused by a mutant growth hormone.";  
 RL N. Engl. J. Med. 334:432-436(1996).  
 RN [26]  
 RP ERRATUM.  
 RA Takahashi Y., Kaji H., Okimura Y., Goji K., Abe H., Chihara K.;  
 RL N. Engl. J. Med. 334:1207-1207(1996).  
 RN [27]  
 RP VARIANT KOWARSKI SYNDROME GLY-138.  
 RX MEDLINE=97426478; PubMed=9276733;

Query Match 97.9%; Score 460; DB 1; Length 217;  
 Best Local Similarity 98.9%; Pred. No. 1.4e-39;  
 Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 86  
 Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||||||||||  
 Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

## RESULT 2

### SOMA\_MACMU

ID SOMA\_MACMU STANDARD; PRT; 217 AA.  
 AC P33093;  
 DT 01-OCT-1993 (Rel. 27, Created)  
 DT 01-OCT-1994 (Rel. 30, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth hormone) (Growth hormone 1).  
 GN Name=GH1;  
 OS Macaca mulatta (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;  
 OC Cercopithecinae; Macaca.  
 OX NCBI\_TaxID=9544;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=94008724; PubMed=8404617; DOI=10.1210/en.133.4.1744;  
 RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;  
 RT "Cloning of four growth hormone/chorionic somatomotropin-related  
 RT complementary deoxyribonucleic acids differentially expressed during  
 RT pregnancy in the rhesus monkey placenta."  
 RL Endocrinology 133:1744-1752(1993).  
 RN [2]  
 RP SEQUENCE OF 27-217.  
 RX MEDLINE=86129460; PubMed=3080959;  
 RA Li C.H., Chung D., Lahm H.W., Stein S.;  
 RT "The primary structure of monkey pituitary growth hormone."  
 RL Arch. Biochem. Biophys. 245:287-291(1986).  
 CC -!- FUNCTION: Plays an important role in growth control. Its major  
 CC role in stimulating body growth is to stimulate the liver and  
 CC other tissues to secrete IGF-1. It stimulates both the  
 CC differentiation and proliferation of myoblasts. It also stimulates  
 CC amino acid uptake and protein synthesis in muscle and other

CC tissues.

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.

CC -----

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CC -----

DR EMBL; L16556; AAA18842.1; -.

DR PIR; I67410; I67410.

DR HSSP; P01241; 1AXI.

DR InterPro; IPR009079; 4\_helix\_cytokine.

DR InterPro; IPR001400; Somatotropin.

DR Pfam; PF00103; Hormone\_1; 1.

DR PRINTS; PR00836; SOMATOTROPIN.

DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.

DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.

KW Direct protein sequencing; Hormone; Pituitary; Signal.

FT SIGNAL 1 26

FT CHAIN 27 217 Somatotropin.

FT DISULFID 79 191 By similarity.

FT DISULFID 208 215 By similarity.

FT CONFLICT 100 100 E -> Q (in Ref. 2).

FT CONFLICT 179 179 N -> D (in Ref. 2).

SQ SEQUENCE 217 AA; 24913 MW; 2C5180341EEC46D0 CRC64;

Query Match 97.9%; Score 460; DB 1; Length 217;

Best Local Similarity 98.9%; Pred. No. 1.4e-39;

Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 FPTIPLSRLFDNAMLRAHRLHQLAFDQYEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61

Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDQYEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

QY 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

### RESULT 3

#### SOMA\_PANTR

ID SOMA\_PANTR STANDARD; PRT; 217 AA.

AC P58756;

DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth

DE hormone) (Growth hormone 1).

GN Name=GH1;

OS Pan troglodytes (Chimpanzee).

QC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.

OX NCBI\_TaxID=9598;

RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;  
 RT "Independent duplication of the growth hormone gene in three  
 RT Anthropeoidean lineages.";  
 RL Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.  
 CC -!- FUNCTION: Plays an important role in growth control. Its major  
 CC role in stimulating body growth is to stimulate the liver and  
 CC other tissues to secrete IGF-1. It stimulates both the  
 CC differentiation and proliferation of myoblasts. It also stimulates  
 CC amino acid uptake and protein synthesis in muscle and other  
 CC tissues (By similarity).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.  
 CC -----  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; AF374232; AAL72284.1; -.  
 DR HSSP; P01241; 1HWG.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Hormone; Pituitary; Signal.  
 FT SIGNAL 1 26 By similarity.  
 FT CHAIN 27 217 Somatotropin.  
 FT DISULFID 79 191 By similarity.  
 FT DISULFID 208 215 By similarity.  
 SQ SEQUENCE 217 AA; 24843 MW; FEA295EDE0518674 CRC64;

Query Match 97.9%; Score 460; DB 1; Length 217;  
 Best Local Similarity 98.9%; Pred. No. 1.4e-39;  
 Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSES IPT 61  
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 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSES IPT 86  
 Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||  
 Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

#### RESULT 4

Q6IYF0

ID Q6IYF0 PRELIMINARY; PRT; 217 AA.  
 AC Q6IYF0;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)

DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Growth hormone 1 variant 2.  
 GN Name=GH1;  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Jorge A.A.L., Arnhold I.J.P., Mendonca B.B.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DDBJ databases.  
 DR EMBL; AY613432; AAT11509.1; -.  
 DR HSSP; P01241; 1AXI.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005179; F:hormone activity; IEA.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 217 AA; 24946 MW; 72D079DF52BDB51A CRC64;

Query Match 97.9%; Score 460; DB 2; Length 217;  
 Best Local Similarity 98.9%; Pred. No. 1.4e-39;  
 Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61  
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 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 86  
  
 Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||||||||||||||||||||||||||||||  
 Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

# RESULT 5

## Q6IYF1

ID Q6IYF1 PRELIMINARY; PRT; 217 AA.  
 AC Q6IYF1;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Growth hormone 1 variant 1.  
 GN Name=GH1;  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Jorge A.A.L., Arnhold I.J.P., Mendonca B.B.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DDBJ databases.  
 DR EMBL; AY613431; AAT11508.1; -.  
 DR HSSP; P01241; 1A22.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005179; F:hormone activity; IEA.

Query Match 97.0%; Score 456; DB 2; Length 217;  
Best Local Similarity 97.8%; Pred. No. 3.7e-39;  
Matches 89; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

## RESULT 6

Query Match 92.6%; Score 435; DB 2; Length 217;  
Best Local Similarity 92.3%; Pred. No. 5.5e-37;  
Matches 84; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

```

Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
      |||
Db      27  FPTIPLSRLLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
      |||
Qy      62  PSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92

```

Db |:::||||||||||||||||| ||||  
 87 PASKKETQQKSNLELLRISLLLIQSWFEPVQ 117

RESULT 7

SOMA\_SAIBB

ID SOMA\_SAIBB STANDARD; PRT; 217 AA.  
 AC P58343;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Somatotropin precursor (Growth hormone).  
 GN Name=GHI;  
 OS Saimiri boliviensis boliviensis (Bolivian squirrel monkey).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Cebinae; Saimiri.  
 OX NCBI\_TaxID=39432;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=21265430; PubMed=11371582;  
 RA Liu J.C., Makova K.D., Adkins R.M., Gibson S., Li W.H.;  
 RT "Episodic evolution of growth hormone in primates and emergence of the  
 RT species specificity of human growth hormone receptor."  
 RL Mol. Biol. Evol. 18:945-953(2001).  
 CC -!- FUNCTION: Plays an important role in growth control. Its major  
 CC role in stimulating body growth is to stimulate the liver and  
 CC other tissues to secrete IGF-1. It stimulates both the  
 CC differentiation and proliferation of myoblasts. It also stimulates  
 CC amino acid uptake and protein synthesis in muscle and other  
 CC tissues (By similarity).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.  
 CC -----  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; AF339060; AAK62287.1; -.  
 DR HSSP; P01241; 1A22.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Hormone; Pituitary; Signal.  
 FT SIGNAL 1 26 By similarity.  
 FT CHAIN 27 217 Somatotropin.  
 FT DISULFID 79 191 By similarity.  
 FT DISULFID 208 215 By similarity.  
 SQ SEQUENCE 217 AA; 24864 MW; 9515289992C529F7 CRC64;

Query Match 92.1%; Score 433; DB 1; Length 217;

Best Local Similarity 91.2%; Pred. No. 8.8e-37;  
Matches 83; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
        |||
Db      27 FPTIPLSRLLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
        |:::|||||:||||
Db      87 PASKKETQQKSNLELLRISLILIQSWFEPVQ 117
```

RESULT 8

SOMA\_CALJA

ID SOMA\_CALJA STANDARD; PRT; 217 AA.

AC Q9GMB3;

DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Somatotropin precursor (Growth hormone).

GN Name=GH1;

OS Callithrix jacchus (Common marmoset).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callithrix.

OX NCBI\_TaxID=9483;

RN [1]

RP SEQUENCE FROM N.A.

RA Wallis O.C., Wallis M.;

RT "Cloning and characterisation of a putative growth hormone encoding

RT gene from the marmoset (Callithrix jacchus).";

RL Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.

CC -!- FUNCTION: Plays an important role in growth control. Its major  
CC role in stimulating body growth is to stimulate the liver and  
CC other tissues to secrete IGF-1. It stimulates both the  
CC differentiation and proliferation of myoblasts. It also stimulates  
CC amino acid uptake and protein synthesis in muscle and other  
CC tissues (By similarity).

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.

CC -----  
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CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC -----

DR EMBL; AJ297563; CAC03481.1; -.

DR HSSP; P01241; 1A22.

DR InterPro; IPR009079; 4\_helix\_cytokine.

DR InterPro; IPR001400; Somatotropin.

DR Pfam; PF00103; Hormone\_1; 1.

DR PRINTS; PR00836; SOMATOTROPIN.

DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.

DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.

KW Hormone; Pituitary; Signal.



FT SIGNAL 1 26 By similarity.  
 FT CHAIN 27 217 Somatotropin.  
 FT DISULFID 79 191 By similarity.  
 FT DISULFID 208 215 By similarity.  
 SQ SEQUENCE 217 AA; 24959 MW; E102151A12CE6192 CRC64;

Query Match 91.9%; Score 432; DB 1; Length 217;  
 Best Local Similarity 91.2%; Pred. No. 1.1e-36;  
 Matches 83; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61  
 ||||| ||||||||||||||||||||||||||||||||||||||||  
 Db 27 FPTIPLSRLLDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86  
 Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 |:::|||||||:||||| |||  
 Db 87 PASKKETQQKSNLELLRMSLLLIQSWFEPVQ 117

# RESULT 9

SOM2\_PANTR

ID SOM2\_PANTR STANDARD; PRT; 217 AA.

AC P58757;

DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Growth hormone variant precursor (GH-V) (Placenta-specific growth hormone) (Growth hormone 2).

GN Name=GH2;

OS Pan troglodytes (Chimpanzee).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.

OX NCBI\_TaxID=9598;

RN [1]

RP SEQUENCE FROM N.A.

RA Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;

RT "Independent duplication of the growth hormone gene in three Anthropeoidean lineages.";

RL Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.

CC -!- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other tissues.

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- TISSUE SPECIFICITY: Expressed in the placenta.

CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.

CC -----  
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 CC -----

DR EMBL; AF374233; AAL72285.1; -.  
 DR HSSP; P01241; 1A22.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Glycoprotein; Hormone; Placenta; Signal.  
 FT SIGNAL 1 26 By similarity.  
 FT CHAIN 27 217 Growth hormone variant.  
 FT DISULFID 79 191 By similarity.  
 FT DISULFID 208 215 By similarity.  
 SQ SEQUENCE 217 AA; 24990 MW; 1592A429075677DE CRC64;

Query Match 91.5%; Score 430; DB 1; Length 217;  
 Best Local Similarity 93.4%; Pred. No. 1.8e-36;  
 Matches 85; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSES IPT 61  
 |||||:|||||  
 Db 27 FPTIPLSRLFDNAMLRAHRLYQLAYDITYQEFEEAYILKEQKYSFLQNPQTSLCFSES IPT 86  
 QY 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
 ||||:|||||  
 Db 87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQ 117

# RESULT 10

Q6FH54

ID Q6FH54 PRELIMINARY; PRT; 217 AA.  
 AC Q6FH54;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE GH2 protein.  
 GN Name=GH2;  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Halleck A., Ebert L., Mkoundinya M., Schick M., Eisenstein S.,  
 RA Neubert P., Kstrang K., Schatten R., Shen B., Henze S., Mar W.,  
 RA Korn B., Zuo D., Hu Y., LaBaer J.;  
 RL Submitted (JUN-2004) to the EMBL/GenBank/DDBJ databases.  
 DR EMBL; CR541902; CAG46700.1; -.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005179; F:hormone activity; IEA.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 217 AA; 25001 MW; F24C05312EB37988 CRC64;

Query Match 90.0%; Score 423; DB 2; Length 217;  
 Best Local Similarity 92.3%; Pred. No. 9.6e-36;  
 Matches 84; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db      27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy      62 PSNREETQQKSNLELLLRISLLLIQSWLEPVQ 92
          ||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db      87 PSNRAKTQQKSNLELLLRISLLLIQSWLEPVQ 117
  
```

# RESULT 11

## SOM2\_HUMAN

```

ID  SOM2_HUMAN      STANDARD;      PRT;      217 AA.
AC  P01242; P09587;
DT  21-JUL-1986 (Rel. 01, Created)
DT  28-FEB-2003 (Rel. 41, Last sequence update)
DT  05-JUL-2004 (Rel. 44, Last annotation update)
DE  Growth hormone variant precursor (GH-V) (Placenta-specific growth
DE  hormone) (Growth hormone 2).
GN  Name=GH2;
OS  Homo sapiens (Human).
OC  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC  Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX  NCBI_TaxID=9606;
RN  [1]
RP  SEQUENCE FROM N.A. (ISOFORM 1).
RX  MEDLINE=83182010; PubMed=7169009;
RA  Seeburg P.H.;
RT  "The human growth hormone gene family: nucleotide sequences show
RT  recent divergence and predict a new polypeptide hormone.";
RL  DNA 1:239-249(1982).
RN  [2]
RP  SEQUENCE FROM N.A. (ISOFORMS 1 AND 2).
RX  MEDLINE=88243769; PubMed=3379057;
RA  Cooke N.E., Ray J., Emery J.G., Liebhaver S.A.;
RT  "Two distinct species of human growth hormone-variant mRNA in the
RT  human placenta predict the expression of novel growth hormone
RT  proteins.";
RL  J. Biol. Chem. 263:9001-9006(1988).
RN  [3]
RP  SEQUENCE FROM N.A. (ISOFORM 1).
RX  MEDLINE=89024984; PubMed=2460050;
RA  Igout A., Scippo M.L., Franken F., Hennen G.;
RT  "Cloning and nucleotide sequence of placental hGH-V cDNA.";
RL  Arch. Int. Physiol. Biochim. 96:63-67(1988).
RN  [4]
RP  SEQUENCE FROM N.A.
RX  MEDLINE=89307277; PubMed=2744760;
RA  Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
RA  Seeburg P.H.;
RT  "The human growth hormone locus: nucleotide sequence, biology, and
RT  evolution.";
RL  Genomics 4:479-497(1989).
  
```

RN [5]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Placenta;  
 RX MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;  
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,  
 RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,  
 RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,  
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,  
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,  
 RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,  
 RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,  
 RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,  
 RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,  
 RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,  
 RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,  
 RA Fahey J., Helton E., Kettelman M., Madan A., Rodrigues S., Sanchez A.,  
 RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,  
 RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,  
 RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,  
 RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,  
 RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;  
 RT "Generation and initial analysis of more than 15,000 full-length human  
 RT and mouse cDNA sequences."  
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).

RN [6]  
 RP REVIEW.  
 RX MEDLINE=99321812; PubMed=10393484; DOI=10.1159/000053128;  
 RA Baumann G.;  
 RT "Growth hormone heterogeneity in human pituitary and plasma."  
 RL Horm. Res. 51 Suppl. 1:2-6(1999).  
 CC -!- FUNCTION: Plays an important role in growth control. Its major  
 CC role in stimulating body growth is to stimulate the liver and  
 CC other tissues to secrete IGF-1. It stimulates both the  
 CC differentiation and proliferation of myoblasts. It also stimulates  
 CC amino acid uptake and protein synthesis in muscle and other  
 CC tissues.  
 CC -!- SUBUNIT: Monomer, dimer, trimer, tetramer and pentamer, disulfide-  
 CC linked or non-covalently associated, in homopolymeric and  
 CC heteropolymeric combinations. Can also form a complex either with  
 CC GHBP or with the alpha2-macroglobulin complex.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=2;  
 CC Name=1; Synonyms=GH-V1;  
 CC IsoId=P01242-1; Sequence=Displayed;  
 CC Name=2; Synonyms=GH-V2;  
 CC IsoId=P01242-2; Sequence=VSP\_006203;  
 CC Note=No experimental confirmation available;  
 CC -!- TISSUE SPECIFICITY: Expressed in the placenta.  
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.

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```

DR      EMBL; K00470; AAA98619.1; -.
DR      EMBL; J03756; AAB59547.1; -.
DR      EMBL; J03756; AAB59548.1; -.
DR      EMBL; M38451; AAA35891.1; -.
DR      EMBL; J03071; AAA52552.1; -.
DR      EMBL; BC020760; AAH20760.1; -.
DR      PIR; A28072; STHUV2.
DR      PIR; D32435; STHUV.
DR      HSSP; P01241; 1A22.
DR      Genew; HGNC:4262; GH2.
DR      H-InvDB; HIX0014077; -.
DR      MIM; 139240; -.
DR      GO; GO:0005179; F:hormone activity; TAS.
DR      InterPro; IPR009079; 4_helix_cytokine.
DR      InterPro; IPR001400; Somatotropin.
DR      Pfam; PF00103; Hormone_1; 1.
DR      PRINTS; PR00836; SOMATOTROPIN.
DR      PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR      PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW      Alternative splicing; Glycoprotein; Hormone; Placenta; Polymorphism;
KW      Signal.
FT      SIGNAL          1          26
FT      CHAIN           27         217      Growth hormone variant.
FT      DISULFID        79         191      By similarity.
FT      DISULFID       208         215      By similarity.
FT      CARBOHYD        166         166      N-linked (GlcNAc. . .) (Potential).
FT      VARSPLIC        153         217      RLEDGSPRTGQIFNQSYSKFDTKSHNDDALLKNYGLLYCFR
FT                                         KDMDKVETFLRIVQCRSVEGSCGF -> VRVAPGIPNPGAP
FT                                         LASRDWGEKHCCPLFSSQALTQENSPYSSFLVNPPGLSLQ
FT                                         PGGEGGKWMNERGREQCPSAWPLLLFLHFAEAGRWQPPDWA
FT                                         DLQSVLQQV (in isoform 2).
FT                                         /FTId=VSP_006203.
FT      VARIANT         90          90      R -> W (in dbSNP:5389).
FT                                         /FTId=VAR_014591.
FT      CONFLICT        109         109      I -> T (in Ref. 2).
SQ      SEQUENCE       217 AA;  24999 MW;  7B9324698E822F96 CRC64;

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Query Match 89.8%; Score 422; DB 1; Length 217;  
Best Local Similarity 92.3%; Pred. No. 1.2e-35;  
Matches 84; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDQYEFEEAYIPKEQKYSFLQNPQTSLSFSES IPT 61
        |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db      27  FPTIPLSRLFDNAMLRRRLYLQLAYDQYEFEEAYILKEQKYSFLQNPQTSLCFSES IPT 86

Qy      62  PSNREETQOKSNLELLRISLLLIQSWLEPVQ 92
        |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db      87  PSNRVKTOKSNLELLRISLLLIQSWLEPVQ 117

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RESULT 12

014644

ID O14644 PRELIMINARY; PRT; 245 AA.

AC 014644;

DT 01-JAN-1998 (TrEMBLrel. 05, Created)



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RP      SEQUENCE FROM N.A.
RA      Halleck A., Ebert L., Mkoundinya M., Schick M., Eisenstein S.,
RA      Neubert P., Kstrang K., Schatten R., Shen B., Henze S., Mar W.,
RA      Korn B., Zuo D., Hu Y., LaBaer J.;
RL      Submitted (JUN-2004) to the EMBL/GenBank/DDBJ databases.
DR      EMBL; CR541924; CAG46722.1; -.
DR      GO; GO:0005576; C:extracellular; IEA.
DR      GO; GO:0005179; F:hormone activity; IEA.
DR      InterPro; IPR009079; 4_helix_cytokine.
DR      InterPro; IPR001400; Somatotropin.
DR      Pfam; PF00103; Hormone_1; 1.
DR      PRINTS; PR00836; SOMATOTROPIN.
DR      PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR      PROSITE; PS00338; SOMATOTROPIN_2; 1.
FT      NON_TER      217      217
SQ      SEQUENCE      217 AA;  25010 MW;  075C0EF63C15AAF5 CRC64;

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RESULT 14

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ID      Q866T9          PRELIMINARY;          PRT;    184 AA.
AC      Q866T9;
DT      01-JUN-2003   (TrEMBLrel. 24, Created)
DT      01-JUN-2003   (TrEMBLrel. 24, Last sequence update)
DT      01-MAR-2004   (TrEMBLrel. 26, Last annotation update)
DE      Placental lactogen PL-C (Fragment).
OS      Pan troglodytes (Chimpanzee).
OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC      Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX      NCBI_TaxID=9598;
RN      [1]
RP      SEQUENCE FROM N.A.
RX      PubMed=15246530; DOI=10.1016/j.gene.2004.03.034;
RA      Revol De Mendoza A., Esquivel Escobedo D., Martinez Davila I.,
RA      Saldana H.;
RT      "Expansion and divergence of the GH locus between spider monkey and
RT      chimpanzee.";
RL      Gene 336:185-193(2004).
RN      [2]
RP      SEQUENCE FROM N.A.
RA      Revol A., Esquivel D.E., Barrera H.S.;
RT      "The GH-PL locus a hot-point between human and chimpanzee genomes.";
RL      Submitted (AUG-2002) to the EMBL/GenBank/DDBJ databases.
DR      EMBL; AY146627; AAN84507.1; -.
DR      HSSP; P01241; 1AXI.

```

DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005179; F:hormone activity; IEA.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 FT NON TER 184 184  
 SQ SEQUENCE 184 AA; 21145 MW; 68D1FF4AE59178DD CRC64;

Query Match 84.9%; Score 399; DB 2; Length 184;  
 Best Local Similarity 84.6%; Pred. No. 2.4e-33;  
 Matches 77; Conservative 7; Mismatches 7; Indels 0; Gaps 0;

QY 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61  
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 Db 27 FPTIPLSRLFDHAMLQAHRAHQLAIDTYQEFEEAYIPKDQKYSFLHDSQTSFCFSDSIPT 86  
 QY 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92  
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 Db 87 PSNMEETQQKSNLELLRISLLLIQSWLEPVR 117

# RESULT 15

Q07369

ID Q07369 PRELIMINARY; PRT; 217 AA.  
 AC Q07369;  
 DT 01-NOV-1996 (TrEMBLrel. 01, Created)  
 DT 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)  
 DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)  
 DE Chorionic somatomammotropin-3.  
 OS Macaca mulatta (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;  
 OC Cercopithecinae; Macaca.  
 OX NCBI\_TaxID=9544;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Midpregnancy placenta;  
 RX MEDLINE=94008724; PubMed=8404617; DOI=10.1210/en.133.4.1744;  
 RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;  
 RT "Cloning of four growth hormone/chorionic somatomammotropin-related  
 RT complementary deoxyribonucleic acids differentially expressed during  
 RT pregnancy in the rhesus monkey placenta."  
 RL Endocrinology 133:1744-1752(1993).  
 DR EMBL; L16554; AAA18841.1; -.  
 DR PIR; I67409; I67409.  
 DR HSSP; P01241; IAXI.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005179; F:hormone activity; IEA.  
 DR GO; GO:0005213; F:structural constituent of chorion (sensu In. . .; IEA.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; UNKNOWN\_1.



SQ SEQUENCE 217 AA; 24874 MW; F1EB6AFDBBA1B185 CRC64;

Query Match 84.5%; Score 397; DB 2; Length 217;  
Best Local Similarity 83.3%; Pred. No. 4.8e-33;  
Matches 75; Conservative 8; Mismatches 7; Indels 0; Gaps 0;

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QY          3 PTIPLSRLFDNAMLRAHRLHLQLAFDITYQEFEAYIPKEQKYSFLQNPTSLSFSESIPTP   62  
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Db         28 PSVPLSRLFDNIMMQAHRHLQLAFDITYQEFEKTYIPKEKKHSIMGPNQASFCFSES IPTP   87  
  
QY        63 SNREETQQKS NLELLRIS LLLIQSWLEPVQ    92  
|||||||  
Db       88 SNREETQQKS NLELLRIS LLLIQSWLEPVQ   117
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Search completed: February 11, 2005, 18:22:43  
Job time : 80.2878 secs